BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 19 1938

"GONOCOCCAL ANTITOXIN" IN THE TREATMENT OF GONORRHOEA

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In a preliminary report Anwyl-Davies (1937) described the results he had observed in a series of 157 cases of gonorrhoea in the male, treated with a serum prepared by Parke, Davis and Co., and described as a "specific antitoxin." The series included forty-two cases of acute uncomplicated gonorrhoea and 115 with complications, eighty-four of them acute, and his conclusions were: (*a*) that the results were distinctly encouraging; (*b*) that the "antitoxin" possessed specific therapeutic properties; (*c*) that clinical evidence suggested that both active and passive immunity were established; and (*d*) that the "antitoxin" seemed to offer considerable promise in the treatment of gonorrhoea.

The evidence supporting these conclusions was rather indefinite, as was pointed out by W. Lester (1937), but the claims made for the serum were so exceptional that we decided to try it. Our results in 129 male patients treated in these clinics agreed so completely in their lack of any evidence supporting the conclusions arrived at by Anwyl-Davies that we have combined them in one paper. These combined cases are shown in Table I.

TABLE I.—*Combined Cases*

Type of Case	St. Peter's	Whitechapel Clinic	St. Charles's	Totals
Uncomplicated:				
Acute	48	16	3	67
Chronic ..	—	—	—	—
Complicated:				
Acute	27	—	13	40
Chronic ..	22	—	—	22
Total ..	97	16	16	129

In this table, and also in the others, the term "uncomplicated" means with urethritis only, and "complicated" means with gonococcal infection of the urethral adnexa or other parts of the body. "Acute" means with infections of less than three months' duration at the time the patient came under our care, and "chronic" means with infections of more than three months' duration.

The serum used in our investigations was in two forms, described respectively as "unconcentrated antitoxin" and "concentrated antitoxin." According to the makers "unconcentrated antitoxin" is the original preparation made by a method practically identical with the Ferry procedure for the production and standardization of meningococcus antitoxin. "Concentrated antitoxin" is the original preparation after concentration by the Banzhaf method. This is said to remove excess of protein and leave the "antitoxin" in the pseudo-globulin fraction. Theoretically it is five times as potent as the unconcentrated preparation. In his report Anwyl-Davies describes results obtained with the use of both these preparations.

As indicated, the cases were treated in three series and the observations were made independently: those in St. Peter's Hospital, Whitechapel, which are presented first, by J. G.; those in the Whitechapel Clinic by E. T. B. and A. J. K.; and the last series, at St. Charles's Hospital, by A. H. H. At the end of the report we present a summary of our conclusions based on a combined study of all our results. We have not presented comparative findings in a series of controls, for reasons of space and because our results with this preparation have been so bad that the necessity for comparison does not arise.

St. Peter's Hospital Series

The results obtained from the use of the serum in ninety-seven cases at this hospital are shown in Table II. The ages ranged from 16 to 61 years, with an average of approximately 29. Those without complications were treated mostly as out-patients; all the complicated cases received in-patient treatment. All injections of the serum were given intramuscularly on consecutive days.

TABLE II.—*Summary of Results from St. Peter's Hospital*

Group	No. of Cases	Untoward Effects				Assessment of Results							
		Reactions		Complications		Excellent		Good		Fair		Bad	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Uncomplicated Acute ..	48	9	19	7	14	—	—	—	—	—	—	48	100
Complicated Acute ..	27	10	37	5	18	—	—	—	—	8	30	19	70
Complicated Chronic ..	22	4	18	5	23	—	—	—	—	7	32	15	68
Total ..	97	23	24	17	18	—	—	—	—	15	16	82	84

The following is a detailed analysis of the cases summarized in Table II:

ACUTE UNCOMPLICATED GONORRHOEA

There were forty-eight cases in this group. Six were treated as in-patients and eight (19 per cent.) of the remainder had to be admitted to hospital later, either because of reactions which developed or because of the subsequent onset of complications (see below). The majority of cases came under observation within a few days of the appearance of the urethral discharge. Unconcentrated serum was given to forty-one patients and concentrated to the remaining seven. In forty-three cases the serum only was given at first, but in all of these it was necessary to continue with routine methods of urethral irrigations and alkalis by the mouth.

(*a*) *Unconcentrated Serum* (41 Cases).—This was given to forty out-patients and one in-patient. The dosage was 2, 3, 5, and 10 c.cm. on successive days in fourteen cases; and 10, 15, and 20 c.cm. in twenty-seven. In the group of fourteen patients two (14.2 per cent.) developed severe arthritis within a few days after completion of the course of injections and had to be admitted to hospital. In the group of twenty-seven patients one developed arthritis, one tenosynovitis, and two epididymitis (14.8 per cent.). The complication rate for the combined series was thus 14.6 per cent.

(*b*) *Concentrated Serum* (7 Cases).—This was used in the treatment of two out-patients and five in-patients. The amount given was 2, 3, and 5 c.cm. in two cases; six doses of 2 c.cm. in three cases; six of 1.5 c.cm. in one case; and 1, 1.5, 1.5, 2, 2, and 2 c.cm. in the remaining case. One patient (14.2 per cent.) developed epididymitis soon after completing the course of treatment.

Results.—The immediate favourable clinical, bacteriological, and serological results were negligible. No patient was cured in under four months. Of the forty-eight patients thirty-three subsequently attended the Whitechapel Clinic. Of these ten (21 per cent. of the total) were cured and twenty-two (46 per cent.) ceased to attend before cure. The criteria of cure were negative clinical examinations with repeated negative microscopical, cultural, and serological findings, and of the ten satisfying these requirements one did so at the fourth month, two at the fifth, three at the sixth, one at the eleventh, one at the fifteenth, one at the eighteenth, and one at the twenty-fourth. Of the twenty-two defaulters five had attended for one month, five for two months, one for three months, three for four months, two for five months, and six for from six to sixteen months. There are records of pathological tests for thirteen of these defaulters. In four cases some negative tests had been obtained at the time of default; in one case gonococci persisted in the urethral smear, and in eight the complement-fixation test was positive in the blood serum. One other patient is still attending at the Whitechapel Clinic after two years. One patient was transferred to another clinic after discharge from St. Peter's Hospital.

ACUTE COMPLICATED GONORRHOEA

In this group of twenty-seven cases complications had developed within three months of the onset of the disease. The actual time interval varied from four and a half to six weeks. Nineteen were treated with unconcentrated and eight with concentrated serum. The frequency and distribution of complications at the outset were as follows: epididymitis in twenty, acute prostatitis in three, and arthritic complications (including inflammation of soft tissues) in four.

(*a*) *Unconcentrated Serum* (19 Cases).—This was given in four doses, of 2, 3, 5, and 10 c.cm. to fifteen patients; in three doses, of 10, 10, and 20 c.cm. to one patient; in four doses, of 5, 10, 15, and 20 c.cm. to two patients; and in six doses of 10 c.cm. to one patient. A patient who had received a total of 50 c.cm. of serum developed epididymitis in addition to his original complication. Another had 2, 3, and 10 c.cm. on consecutive days as an out-patient, and was admitted to hospital when he developed arthritis of one wrist and tenosynovitis of the extensor tendons of the same hand. The added-complication rate was thus 10 per cent.

(*b*) *Concentrated Serum* (8 Cases).—With each dose a subcutaneous injection of 3 minims of 1 in 1,000 adrenaline hydrochloride was given on the supposition that it might prevent serum reactions. The dosages were: seven injections of 2 c.cm. to five patients; six of 2 c.cm. to one patient; six of 1.5 c.cm. to one patient; and six of 1 c.cm. followed by eight of 0.5 c.cm. to one patient. One patient was admitted for epididymitis occurring on the side opposite to that already treated. Another developed epididymitis and vesiculitis after six injections each of 2 c.cm. of serum. A third developed arthritis of the knees, tenosynovitis of one foot, and acute prostatitis after injections totalling 10 c.cm. of serum. The added-complication rate was thus 37.5 per cent.

Results.—The immediate clinical results indicated that the unconcentrated serum exerted an adverse effect in sixteen cases and did not impede recovery in three. The concentrated preparation appeared to have an adverse effect in four and to exert no effect in the same number. In no instance did any complication clear up more quickly after serum injections than by routine methods. In every case injections of serum had to be supplemented later by other methods of treatment.

The following bacteriological and serological results refer only to the period of stay in hospital, which averaged three weeks for this group. In seven patients treated with unconcentrated serum the smears remained positive in four and became negative in three. In six patients treated with concentrated serum the smears remained positive in three. For the remaining cases bacteriological records are not available. In the nineteen patients treated with unconcentrated serum the complement-fixation test remained positive in fourteen, became negative in three, and was unreadable in two. In all of the eight patients treated with concentrated serum the complement-fixation test remained positive. Of the twenty-seven patients in this series twenty-three have been followed up. Five of these are still attending the Whitechapel Clinic from twenty-one to twenty-four months after completing the course of serum injections. Six patients were cured (22 per cent.): two after six months, one after eight months, two after nine months, and one after eighteen months. There were twelve defaulters (44 per cent.): two within the first month, one at the second, one at the fourth, two at the sixth, two at the ninth, one at the fourteenth, one at the fifteenth, one at the eighteenth, and one at the nineteenth.

CHRONIC COMPLICATED GONORRHOEA

This group of twenty-two cases includes those patients with recent urethritis who had had one or more previous attacks of gonorrhoea and in whom relapse was suspected.

(*a*) *Unconcentrated Serum* (16 Cases).—Five patients were treated in the first attack and eleven in the second or later attacks. In the former group the time since the onset varied

from four months to two years—average, twenty months. In the latter group the time since the onset varied from three days to six weeks—average, four weeks. The chief complications present on admission were arthritis in ten and epididymitis in six cases. Some of these patients had other complications, such as iritis and keratodermia blennorrhagica. The dosage was 2, 3, 5, and 10 c.cm. in twelve cases; four of 10 c.cm. in one case; 10, 15, and 20 c.cm. in one case; 5, 10, 15, and 20 c.cm. in one case; 1, 2, 5, 10, 20, and 20 c.cm. in one case; 1, 10, 10, 20, 10, 10, and 10 c.cm. in one case; and ten of 10 c.cm. in one case. Two patients received a second series of injections within a few days of the end of the first course. Added complications totalled five (31.2 per cent.), and consisted of iritis in one case, arthritis in one, epididymitis in two, and fibrositis in one.

(*b*) *Concentrated Serum* (6 Cases).—Four patients had had previous attacks of gonorrhoea. The chief complications present on admission were: arthritis in three cases, epididymitis in two, and iritis in one. The dosage was as follows: seven of 2 c.cm. in one case; six of 2 c.cm. in four cases; and 1, 2, and 3 c.cm. in one case.

The average period of in-patient stay for patients treated with unconcentrated serum was 40.5 days; with concentrated serum it was 40 days for patients with arthritis and 25.7 days for those with other complications. Again treatment with serum had to be supplemented later by ordinary methods.

Results.—The immediate clinical results indicated that unconcentrated serum had some adverse effect in eleven instances and did not retard recovery in five. The concentrated serum affected four cases adversely and produced no effect in two (both cases of epididymitis). In no instance was a patient discharged from hospital in less than nine days. In six of the ten patients with arthritis the joints had fully recovered on discharge from hospital. In four there was some limitation of movement. The following bacteriological and serological results refer only to the period of in-patient stay. In thirteen out of sixteen patients treated with unconcentrated serum the smears remained positive in nine and became negative in four. Of six patients treated with concentrated serum two showed gonococci in smears on discharge to out-patient treatment. The complement-fixation test in sixteen patients treated with unconcentrated serum remained positive in ten and became negative in five, while in the remaining case the serum was anti-complementary. In the patients treated with concentrated serum the complement-fixation test remained positive in four, became negative in one, and in one no test was carried out. In this series of twenty-two patients sixteen were traced after discharge. Of these, seven (31.8 per cent.) remain uncured after an observation period varying from eighteen months to two years. Nine patients defaulted (41.9 per cent.): three immediately, one at the second month, one at the third, one at the fourth, one at the sixth, one at the sixteenth, and one at the seventeenth. Thus in two years no instance of cure was recorded in this group.

REACTIONS

The majority of the patients treated with injections of serum complained of a variable amount of pain and stiffness at the sites of injection. Twenty-three of the total of ninety-seven had general reactions of one kind or another—namely, fifteen of seventy-six patients treated with unconcentrated and eight of twenty-one treated with concentrated serum. Ten of these suffered from pains in the head and at the injection site, combined with shivering, high fever, pain in the lower limbs, and malaise; the thirteen others developed urticarial rashes combined with a variable degree of headache, malaise, and pyrexia. Such reactions developed within a few minutes or hours of injections in some cases, but in others they were delayed for several days. Of the total of twenty-three patients who had reactions nine were under treatment for uncomplicated urethritis, ten for acute complications of the disease, and four for chronic complications. The injection of adrenaline solution was not effective in controlling unpleasant symptoms in patients who had previously experienced reactions.

Whitechapel Clinic Series

In order to extend our observations with this preparation supplies of "unconcentrated antitoxin" were purchased through the ordinary commercial channels. Specimens of the serum were submitted to a series of complement-fixation tests with a gonococcal antigen in order to obtain evidence of the presence of gonococcal antibodies. These tests proved to be unsatisfactory owing to the anti-complementary nature of the serum, which was possibly due to the preservatives contained in the commercial product. It is understood that such tests do not form part of the manufacturers' method of standardizing this preparation. At the time these supplies were issued the daily dosage recommended was 3 to 5 c.cm. of the serum, given intramuscularly. It was hoped that, with the aid of this treatment, in favourable cases discharges would subside and gonococci disappear within the space of fourteen days. The serum reactions which resulted from this dosage were so severe that the medical representative of the manufacturers was consulted, and it was recommended that the initial dosage should be 0.5 to 1 c.cm., and that once the first reaction had occurred adrenaline solution should be injected half an hour before serum was given. This advice was followed, and accounts for the considerable variation in the dosage which these patients received (Table III).

The treatment was applied to sixteen male patients with acute uncomplicated gonorrhoea. These were unselected cases except in so far as it was necessary to stipulate the conditions of regular attendance and accessibility for close observation. All were treated as out-patients, and the average age was 25 years, the oldest being 37 and the youngest 18. Treatment was instituted in late June and early July of 1937, and most of these patients have remained under observation or treatment up to the time of writing in early December.

Observation was maintained by daily examination of the patients under treatment. Each day a record was made of the presence or absence of urethral discharge, of microscopical findings in the discharge, of the condition of the urine, of effects of the serum treatment, and of complications of the disease. It was planned to administer serum during the first fifteen days of treatment, withholding urethral irrigations during this time but giving irrigations from the end of the fifteenth day onwards, unless the condition of the patient warranted the cessation of all treatment. In some cases it was necessary to discontinue the injections before the end of the fifteen-day period owing to severe reactions, but in spite of this irrigations were withheld until the fifteen days had elapsed in all but one case. In others injections were continued beyond the fifteen-day limit in the hope of producing a delayed effect, and in these cases irrigations were withheld until the course of injections was completed.

All sixteen patients finally required irrigation treatment and received anterior and posterior urethral irrigation with 1 in 8,000 potassium permanganate solution once or twice daily according to the ability of the individual patient to attend. All the patients received the general treatment and advice which are routine in this clinic for those suffering from gonococcal infections, but no alkalis or other medicaments were given by mouth.

The dosage of serum used in each case is shown in Table III, the figures in parentheses denoting the injections which were followed by reactions and the letter *a* indicating the administration of adrenaline solution. Subcutaneous injections of 1 to 5 minims of adrenaline hydrochloride (1 in 1,000) solution were used according to the size of dose of serum; and in the large majority the doses of adrenaline were given half an hour before the serum was injected.

TABLE III.—*Dosage given in the Whitechapel Clinic Series (c.cm. of Serum).*

Case	Days of Treatment																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	22	23	26	27	28	29	31
1	3	3	3	3		(3)		(3)	1*a*	1*a*	(1)*a*	1*a*	1*a*													
2	3	3	3		3	(3)		(1)*a*	1*a*	1*a*	1*a*	1*a*	2*a*	3*a*	3*a*	3*a*	3	3	3							
3	3	(3)	1*a*	1*a*	(2)*a*																					
4	3	3	3	4	(5)	1	1	1	1	(1)																
5	3	3	3	4	4	(5)	(5)	(5)	(5)	(5)		1*a*	1*a*	1*a*	1*a*											
6	3	3	3	4	4	(3)	3	1	(1)	1*a*	1*a*		1*a*	1*a*	1*a*											
7	3	3	3	3	3	(3)		(1)*a*			(½)*a*	½*a*		½*a*	1*a*	1*a*	1*a*		1*a*							
8	3	3	4	4	(5)	(3)	(1)	1	½	(1)																
9	3	3	3	3		(3)	3	(3)	(1)*a*	1*a*	1*a*	1*a*	1*a*	1*a*	1*a*											
10	3	3	3	4	3	(3)	1*a*	1*a*	(1)*a*																	
11	½	½	1	1	1	1	1	1			1	1										1*a*	1*a*	1*a*	1*a*	1*a*
12	1	1	1	1	(1)	½*a*	½*a*	½*a*	½*a*	(½)*a*	½*a*															
13	1	1	1	1	1	(1)			(½)*a*																	
14	1	1	1	1	1		(1)	(½)*a*			(½)*a*															
15	1	1	1	1	1	(1)		½*a*	½*a*	(½)*a*	½*a*	(½)*a*	½*a*	½*a*												
16	1	1	1	1	1	(1)	½*a*	(½)*a*		½*a*	½*a*		½*a*	½*a*	½*a*				½*a*	½*a*	½*a*					

a = Administration of adrenaline. Figures in parentheses = Dose followed by reaction.

TABLE IV.—*Whitechapel Clinic Series: Clinical and Microscopical Findings*

Case	Persistence of			Subsequent History	Complications
	Urethral Discharge	Gonococci	Haziness or Pus Threads (Urine)		
1	12 weeks	11 weeks	14 weeks	Defaulted after 15 weeks, during tests for latency	
2	18½ ,,	18½ ,,	18½ ,,	Then successfully treated with sulphanilamide	
3	5 months, and continues	5 months, and continues	5 months, and continues	Treatment for urethritis continues. Five relapses with gonococci	
4	9 weeks	9 weeks	20 weeks, and continues	Treatment for urethritis continues	
5	18 ,,	18 ,,	18 weeks	Treatment for arthritis and chronic prostatitis continues	Gonococcal arthritis of right knee-joint. Infection of right Tyson's gland
6	5 months, and continues	8 ,,	16 ,,	Under treatment for chronic gonococcal prostatitis and rheumatism	Multiple gonococcal arthritis and rheumatism
7	8 weeks	7 ,,	8 ,,	Treatment for chronic prostatitis continues	
8	7 ,,	11 days, then defaulted temporarily	7 ,,	Self-treatment without observation 11th to 29th day. Treatment for chronic prostatitis continues	
9	11 ,,	11 weeks	11 ,,	Defaulted after 11 weeks. Unimproved	
10	10 ,,	10 ,,	10 weeks and continues	Treatment for urethritis continues	
11	4½ ,,	4½ weeks, then defaulted	4½ weeks	Defaulted after 4½ weeks. Unimproved	
12	11 ,,	11 weeks, then defaulted	11 ,,	Defaulted at 11 weeks. Unimproved	Left epididymitis
13	9 ,,	4 weeks	14 ,,	Defaulted at stage of clinical cure. Had evidence of chronic prostatitis	Multiple gonococcal arthritis and rheumatism
14	4 weeks, then defaulted temporarily	3 weeks, then defaulted temporarily	4 weeks, then defaulted for 6 weeks	Treatment for chronic prostatitis continues	
15	7 weeks	7 weeks, then to hospital	7 weeks	Admitted to hospital at 7 weeks. Later returned with chronic prostatitis	Gonococcal arthritis, multiple
16	8 ,,	8 weeks	8 ,,	Defaulted after 8 weeks. Unimproved	

REACTIONS

Only one patient remained free from symptoms or signs attributable to the injections of serum; the other fifteen suffered from both local and general reactions. In most cases these occurred after the fifth to the seventh injection, and thereafter it was difficult or impossible to control them.

Local Effects.—Nine complained of pain at the site of injection in the buttock, and this pain was often of a severe and crippling nature, sufficient to cause interference with or cessation of the patient's work. The pain was accompanied by pronounced tenderness, and in seven cases there was widespread erythema of the skin of the affected buttock. The remaining six complained of varying degrees of stiffness and tenderness at the injection site.

General Effects.—The frequency of these is shown in Table III. Reactions which could be classed as severe occurred in thirteen patients, and in two they were moderately severe. The remaining patient had no symptoms attributable to the injections. The severe effects included fever varying from 100.2° F. to 103.8° F., and this occurred in all thirteen patients. Almost all complained of severe headaches, malaise, "feverishness," and sweating. Skin eruptions appeared in eight patients, of whom three had generalized urticaria, three had a purpuric rash on the skin of the lower limbs, and two had papular erythematous rashes on the skin round the ankles and lower legs. Two had herpes of the lips. Generalized arthralgia occurred in nine cases, and in three there were joint effusions. Many of the patients complained of generalized muscle pains.

It will be clear from this description that at any rate thirteen of these sixteen patients were really ill as the result of the treatment, and it must be regarded as a considerable credit to the resolution of this group of men that only three of them refused further injections in consequence of these symptoms. The two patients who suffered reactions of moderate severity had pyrexia, malaise, and muscle pains in less marked degree.

Injections of adrenaline did not appear to counteract or prevent reactions, but on the whole the effects were less persistent and less severe with smaller dosage of serum.

RESULTS

An attempt was made to assess the results of this treatment on the basis of the persistence of gonococci and urethral discharge, the spread of infection as judged by clinical findings, the duration of evidence of infection in specimens of urine, the effect on antibody content of the blood as measured by the complement-fixation test for gonorrhoea, the development of complications of the infection, and the application of tests for latency at the stage of clinical cure. At the beginning of treatment four patients had shown evidence that the infection had already extended to the posterior urethra. In the remaining twelve the signs suggested infection limited to the anterior urethra. All these developed signs of posterior urethritis while under treatment. Table IV summarizes the clinical and microscopical findings.

In none of these patients did the smears become negative or the discharge cease as the result of serum treatment alone. All required urethral irrigations. Six patients suffered a relapse of urethral discharge when the irrigations were discontinued after apparent clinical cure. Microscopical examination of these discharges showed gonococci in five cases. In four the symptoms and signs finally disappeared with urethral irrigations. In one patient (Case 2) it was necessary to use large doses of sulphanilamide after the gonococci had persisted for eighteen and a half weeks, a measure which resulted in disappearance of gonococci and urethral discharge within three days. The other patient (Case 3) has relapsed five times and still has gonococci after five months' treatment. In this case also it is proposed to use sulphanilamide.

As regards the effects on serum tests the most striking feature was the frequency with which specimens of sera were reported as "anti-complementary"—an unusual occurrence in the routine of clinic practice. Twenty-six such reports were received on specimens of blood from eight patients in this series, but the significance of this finding is not clear. The sera of three patients gave strongly positive (++ or +±) reactions to the complement-fixation test after periods ranging from three to five weeks. Four others showed a positive (+) test in periods of from one week to four weeks. In five a weakly positive (±) reaction was recorded in the first few weeks. In four the tests remained negative throughout.

Complications of the Infection (5 Cases).—Four patients developed gonorrhoeal arthritis and rheumatism whilst under irrigation treatment subsequent to serum injections. One developed epididymitis on the left side, and one of the patients with arthritis had at the same time an acute inflammatory condition of Tyson's gland on the right side. Thus 31 per cent. of these patients developed acute complications of gonorrhoea.

END-RESULTS

The end-results are shown in Table IV, and may be summarized as follows. Three patients who have been under treatment from eighteen to twenty weeks have signs of persistent urethritis and so remain under treatment. One other patient proved entirely refractory to treatment for eighteen and a half weeks until large doses of sulphanilamide were used, and has by this means reached the stage of clinical cure. Five defaulted after periods varying from four and a half to fourteen weeks; of these, four had persistent urethritis and one had reached the stage of clinical cure after fourteen weeks' treatment. One patient was admitted to hospital with gonorrhoeal arthritis and persistent urethritis after seven weeks of treatment and returned later with chronic prostatitis. The remaining five patients have reached the stage of clinical cure after treatment over a period of eight to eighteen weeks and are being submitted to tests of latency, which consist of complete clinical examination, including urethroscopy, prostatic smears, cultures of vesiculo-prostatic fluid, and complement-fixation tests of the blood serum. Up to the present undoubted evidence of latent gonococcal infection has been found in four of these. The results may be conveniently set out as in Table V:

TABLE V.—*Summary of Results in the Uncomplicated Acute Group of the Whitechapel Clinic Series*

No. of Cases	Untoward Effects				Assessment of Results							
	Reactions		Complications		Excellent		Good		Fair		Bad	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
16	15	94	5	31	—	—	—	—	—	—	16	100

St. Charles's Hospital Series

In this series injections of "unconcentrated gonococcus antitoxin" were administered to sixteen male patients, the average age of whom was 24 years, the maximum being 30 and the minimum 19. Fifteen were in-patients at St. Charles's Hospital, and were treated during the period July 6 to October 19, 1937. One, who received his injections at the Dreadnought Hospital, was subsequently transferred to St. Peter's Hospital, Covent Garden. We are indebted to Mr. P. P. Cole for details of this patient's previous treatment. None of the patients had previously had injections of serum. There were three cases of acute uncomplicated gonorrhoea, eight cases of acute gonococcal epididymitis (in one of which the symptoms of acute prostatitis were also present), and five cases of acute gonococcal arthritis. Smears of the urethral discharge were examined daily for leucocytes and organisms, and a record was kept of the condition of the first morning specimen of urine. The blood sera were tested at weekly intervals by the Wassermann and Kahn tests for syphilis and by the complement-fixation test for gonorrhoea.

The dosage of the serum is shown in Table VI. In some of the cases injections of a solution of adrenaline hydrochloride (1 in 1,000) were given with the serum; in others they were given fifteen minutes before or fifteen minutes after. The dosage of adrenaline hydrochloride corresponded in minims with the number of cubic centimetres of the serum. The time at which the adrenaline was given did not appear to influence the local or general reactions. No irrigation treatment was given during the course of injections, but the patients with acute arthritis had 5 per cent. iodine solution applied to the joints affected, and radiant heat was administered twice each day. Irrigations were withheld until at least four days had elapsed after cessation of serum treatment.

REACTIONS

Fourteen of the patients had severe local and general reactions and two developed only slight local reactions; seven had generalized urticarial eruptions. Most of these

occurred after the sixth injection, regardless of the dosage. One appeared after the third and another was delayed until fourteen days after the last injection. In thirteen patients there was severe pain, swelling, and tenderness in the buttocks; in three of them a local erythematous blush was observed, and in these areas there were numerous purpuric spots which took several days to disappear. One other patient showed purpuric lesions in both antecubital fossae. It seemed as if the serum

TABLE VI.—*Dosage of Serum given in the St. Charles's Hospital Series*

Case	Days when Injections were given and Dosage* of "Gonococcal Antitoxin" in c.cm.														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	3	3	3	3	3	3	–	3	3	–	3	3	3	3	3
2	3	3	3	3	–	3	–	3	3	–	3	3	3	3	3
3	3	3	3	3	3	3	–	3	3	–	3	3	3	3	3
4	1	1	1	1	1	1	1	1	1	–	–	–	–	–	–
5	5	5	–	5	5	5	5	5	5	5	–	–	–	–	–
6	1	1	1	1	1	–	–	–	–	–	–	–	–	–	–
7	1	1	1	1	1	1	1	–	–	–	–	–	–	–	–
8	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–
9	2	2	2	2	2	2	2	2	2	–	–	–	–	–	–
10	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–
11	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–
12	2	2	2	2	2	2	–	2	–	–	–	–	–	–	–
13	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–
14	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–
15	2	2	2	2	2	2	2	2	2	2	–	–	–	–	–
16	3	3	3	3	3	3	3	3	3	3	–	–	–	–	–

* At the outset of the investigation an initial dose of 3 to 5 c.cm. was recommended by the manufacturers. Severe reactions resulted, and it was then advised that the dosage should be reduced.

contained a substance which damaged the vessel walls and increased their permeability. From one patient (Case 3) a fading purpuric lesion was excised. On microscopical examination no appreciable change in the epidermis was found. The superficial blood vessels in the corium were slightly dilated and had a lymphatic cell infiltration around them, and here and there were a few eosinophils and some extravasated corpuscles. In fact, this was a typical section of skin purpura. An itchy papular eruption on the forearms was seen in two patients; and one of them, who also had a generalized giant urticaria, subsequently developed a nummular eczema.

In many of the patients the constitutional disturbance was pronounced. The temperature rose as high as 103° F. It was surprising that the fever produced by the injections did not have the usual beneficial effect on the course of the disease, as the results obtained will show. One patient had a severe asthmatic attack on two occasions following injections of serum, and each time there was almost instantaneous relief after a subcutaneous injection of 3 minims of adrenaline hydrochloride. There was no history of previous asthmatic attacks.

Two patients (Cases 7 and 9) complained of nausea during the treatment, and one (Case 9) vomited at night after the sixth injection and each night subsequently. This continued for three nights after his last, or ninth, injection.

RESULTS

The microscopical findings in the urethral discharges gave no evidence that benefit had been derived from the injections; and at the end of the period of treatment with serum gonococci were found in smears of the urethral discharges from all the patients treated. One patient (Case 7), who was admitted with arthritis of a week's duration, had received a course of urethral irrigations elsewhere. No gonococci were found in the urethral smears or in the urine at the first examination, but after four injections of serum large numbers of gonococci appeared in the daily urethral smears until irrigation treatment was recommenced.

The clinical results were all unsatisfactory. Urethral discharges in the majority of cases became more profuse during treatment. There was no indication that the condition of the joints of those suffering from acute arthritis was improved, and in three patients the joint pains were increased for several hours after each dose of serum. The injections seemed to have no influence in preventing other joints from becoming infected, and in four out of the five patients with this complication further joints became involved. One patient (Case 5) who was suffering from acute arthritis of the right knee with a metastatic gonococcal conjunctivitis developed, after three injections each of 5 c.cm. of serum, acute infection of the left temporo-mandibular joint, right elbow, left wrist, and the proximal interphalangeal joints of the fourth and fifth fingers of the right hand. Another patient (Case 7) was suffering from acute arthritis of the metatarso-phalangeal joint and the first interphalangeal joint of the left big toe; after three injections of 1 c.cm. of serum he also developed acute arthritis of the right knee and the right ankle. Another (Case 9), with acute arthritis of the interphalangeal and metatarso-phalangeal joints of the left foot and the right midtarsal joint, developed acute arthritis of the right knee and a bursitis over the right ischial tuberosity after three injections of the serum, each of 3 c.cm. A fourth (Case 13), who was suffering from acute arthritis of the right hip and right midtarsal joints, also developed acute arthritis of the left knee after he had had three injections, each of 2 c.cm. of serum. One patient (Case 3), admitted with acute prostatitis and left epididymitis, developed arthritis of both knees after the ninth injection of 3 c.cm. of serum.

It will be noted that extension of the infection to other joints during serum treatment occurred in 80 per cent. of the patients suffering from arthritis. On reference to the case records of eighty other patients with gonococcal arthritis treated by orthodox methods at St. Charles's Hospital and elsewhere, it was found that in only 11.25 per cent. had the metastatic involvement extended to other joints.

LABORATORY TESTS

Study of the literature has revealed no references to the possible effects of injections of serum on Wassermann and Kahn reactions in the blood serum. As already stated, these tests were carried out at weekly intervals in fifteen cases, and in nine of the patients one or other test became positive during the period of administration of serum or shortly afterwards. In eight of these nine patients there was no correlation between the positive findings in Wassermann and Kahn tests. In all but one case both tests had become negative without anti-syphilitic treatment before the end of the observation period. In the other case the Kahn reaction was positive at the end of this period, but the Wassermann reaction remained completely negative.

When the patients first came under observation the gonococcal complement-fixation test was positive or weakly positive in seven and completely negative in eight cases. Of the latter group, six subsequently developed positive reactions. The serum appeared to exercise no influence on the strength of the complement-fixation test in the seven who originally had positive reactions. The results of these tests were often reported as "anti-complementary."

One patient (Case 10) refused further treatment after two injections and demanded his discharge from hospital.

TABLE VII.—*St. Charles's Hospital Series: Findings during the Periods of Treatment and Observation*

Case	Period of Observation	Type of Case	Urine: Persistence of Haziness or Pus Threads	Subsequent History and Progress	Complications arising during Treatment
1	9 weeks	Acute right epididymitis	6½ weeks	Chronic urethritis. Defaulted in 9 weeks	
2	4 ,,	Acute epididymitis	4 ,,	Refused further treatment	
3	8 ,,	Acute left epididymitis and prostatitis	8 ,,	Transferred unimproved. Readmitted in 3 months with epididymitis	Gonococcal arthritis both knees
4	3½ ,,	Acute left epididymitis	3½ ,,	Transferred: unimproved	
5	14 ,,	Acute mono-articular arthritis with metastatic conjunctivitis	12 ,,	Finally improved with sulphanilamide and irrigations	Mono-articular arthritis, became polyarticular
6	5 days	Acute uncomplicated urethritis	5 days	Refused further treatment	
7	7 weeks	Multiple acute arthritis	4½ weeks	Improved with sulphanilamide and irrigations	Further joints became involved
8	5 ,,	Acute right epididymitis	5 ,,	Improved, but relapsed, with gonococci	
9	6½ ,,	Multiple acute arthritis	6 ,,	Improved with irrigations and sulphanilamide, then defaulted	Further joints became involved
10	3 days	Acute right epididymitis	3 days	Refused further treatment	
11	18 ,,	Acute left epididymitis	18 ,,	Transferred: some improvement	
12	22 ,,	,, ,,	22 ,,	Transferred: unimproved	
13	6 weeks	Acute polyarticular gonococcal arthritis	3 weeks	Improved with sulphanilamide and irrigations	Further joints became involved
14	9 ,,	Acute polyarticular gonococcal arthritis	8 ,,	Finally improved with sulphanilamide and irrigations	
15	7½ ,,	Acute uncomplicated urethritis	7½ ,,	Transferred: unimproved	Acute prostatitis
16	15 ,,	,, ,, ,,	15 ,,	Finally cured with sulphanilamide	

Two others refused to continue with this form of treatment after five and seven injections respectively. Table VII indicates the findings in this series of patients during the periods of treatment and observation.

The assessment of results has been made with due regard to the effects observed during and immediately after the administration of the serum and also to the subsequent clinical course of the disease, on which the natural powers of immunity and the irrigation treatment used in all these cases must be held to have exerted considerable effect. Seven of the patients received sulphanilamide by mouth in addition to urethral irrigations before the infective process finally subsided. The results of the sixteen cases are summarized in Table VIII.

TABLE VIII.—*Summary of Results in the St. Charles's Hospital Series*

Group	No. of Cases	Untoward Effects				Assessment of Results*							
		Reactions		Complications		Excellent		Good		Fair		Bad	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Uncomplicated Acute ..	3	3	100	1	33	—	—	—	—	—	—	2	66
Complicated Acute ..	13	13	100	5	38	—	—	—	—	1	8	11	85
Total ..	16	16	100	6	37	—	—	—	—	1	8	13	92

* The percentages given in respect of assessment of results are calculated upon the fourteen patients out of the sixteen in whom an assessment was made.

Summary of the Combined Series

The results obtained in the combined series of 129 cases treated with "gonococcal antitoxin" at the three clinics are set out in Table IX.

TABLE IX.—*Results in the Combined Series*

Series	No. of Cases	Untoward Effects		Assessment of Results			
		Reactions	Complications	Excellent	Good	Fair	Bad
St. Peter's ..	97	23	17	—	—	15	82
Whitechapel ..	16	15	5	—	—	—	16
St. Charles's ..	16	16	6	—	—	1	13
Total ..	129	54(41%)	28(21%)	—	—	16(13%)	111(87%)

The contrast between these combined results and those reported by Anwyl-Davies will be clear from comparison between Table IX and Table X, in which his results are summarized.

TABLE X.—*Percentages of Results Given in Preliminary Report (Anwyl-Davies, 1937)*

Excellent	Good	Fair	Bad
49.6	26.9	14.8	5.9

In a personal communication Dr. V. E. Lloyd, director of the venereal disease clinic at Guy's Hospital, states that serum was given to three male patients, but the reactions were in every case so severe that it was not considered justifiable to adopt this method of therapy with any further patients.

The main facts which emerge from our combined experience are these:

(*a*) With this "antitoxin" a disquietingly high proportion of patients developed reactions so severe as to cause interference with or absence from work.

(*b*) An abnormally high percentage of out-patients had to be admitted to hospital during and subsequent to serum treatment on account of reactions and complications.

(*c*) The serum not only does not prevent complications of the infection but it appears to render patients more prone to them.

(*d*) The administration of this serum to patients suffering from metastatic lesions appeared to encourage rather than to prevent extension to other sites.

(*e*) Favourable results were not obtained by serum alone but only after the subsequent adoption of routine methods. Even then good results were delayed beyond the usual period in which they are obtained in patients treated without serum. We take this to indicate that the serum reduces or temporarily destroys the patient's immunity. This is the probable explanation of the high complication rate.

(*f*) The cases which, after the cessation of serum therapy, responded most favourably were those treated with sulphanilamide. But here, again, that agent did not act any more rapidly than it does in patients treated without serum.

(*g*) Certain anomalous results in respect of the Wassermann and Kahn tests occurred in non-syphilitic patients during the serum therapy. This finding is of manifest importance to those who use this serum in the treatment of gonorrhoea.

(*h*) The results obtained in these series were most unsatisfactory and were at complete variance with those reported in the preliminary account of the use of this preparation.

Conclusions

1. The serum described as "gonococcal antitoxin" appears to have no specific anti-gonococcal effect.

2. It appears to delay the development of the active immunity essential to recovery from gonorrhoea without substituting any compensatory passive immunity.

3. Its use in gonorrhoea is inadvisable on account of its lack of therapeutic value, its serious side-effects, its frequent interference with recovery, and possibly also the risk of its rendering patients liable to suffer from serious allergic reactions in the event of their requiring at some future date treatment with antitoxic sera for other bacterial infections.

[In a communication published after this paper was written Anwyl-Davies (*St. Thomas's Hospital Reports*, 1937, **2**, 67) states that since his first report appeared many additional patients have been treated with an improved unconcentrated antitoxin. The precise number of patients is not stated, but the results claimed are: "excellent" and "good" together, 78 per cent.; "fair," 18 per cent.; "bad," 4 per cent.; with no clinical relapses to date.]

The London County Council accepts no responsibility for the opinions or conclusions expressed in this article.

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A HUMAN INFECTION WITH ACTINOMYCES CAPRAE

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The subject from whom this organism was isolated was one of two cases (Case I) of acholuric jaundice in a brother and sister. The following are the clinical histories.

Case I

A girl aged 14 was admitted to hospital on May 22, 1936, with a diagnosis of acholuric jaundice and splenomegaly. Her father was alive and well, with no history of jaundice and no evidence of jaundice or splenomegaly when he was examined on June 6, 1936. Her mother was healthy and active and without jaundice. One brother (Case II) had jaundice and splenomegaly. Four other children were alive and well.

Clinical History.—The patient was healthy at birth, but developed jaundice, which persisted. She had measles when a small child, and while in hospital in 1930 she contracted diphtheria. She was sent to the fever hospital and recovered without complication. The patient suffered from attacks of abdominal pain, mainly on the left side, associated with vomiting and a cold in the head. These attacks occurred every two or three months. The yellow colour increased with the attacks of vomiting. The motions had been normal in colour and the urine had not been dark.

Examination.—The patient was seen to have an adenoid facies and a marked icteric tinge of the skin and conjunctivae. There were petechial haemorrhages on the arms and trunk. Her weight was 74 lb. (the average for 11½ years). The right tonsil was larger than the left, and her teeth were normal. No abnormality was found in the heart and lungs. The spleen was greatly enlarged, and extended to one inch below and two inches to the right of the umbilicus. It was firm and not tender. The liver was slightly enlarged. There were no enlarged lymph glands. The urine was dark; bile was not present, but the test for urobilin was positive, and albumin was found. The deposit showed numerous cellular casts but no organisms. A blood count showed: red cells, 2,280,000 per c.mm.; haemoglobin, 46 per cent.; colour index, 1.0; white cells, 7,200 per c.mm. Differential count: polymorphs, 64 per cent.; lymphocytes, 22 per cent.; mononuclears, 6 per cent.; eosinophils, 8 per cent. All the red corpuscles were small, and two nucleated red cells were seen. There was some anisocytosis, poikilocytosis, and punctate basophilia, and platelets were present. The van den Bergh reaction (indirect) was positive. The icteric index was 55, the bleeding time two and a half minutes, and the coagulation time eight minutes. In the test for fragility haemolysis began at 0.66 and was complete at 0.54 per cent. (a normal control began at 0.32 and was complete at 0.28 per cent.). The sigma reaction was negative. Blood group, IV. An *x*-ray report on the hands showed no signs of rickets, but there was slight osteoporosis of the metacarpals. The patient was kept under observation in hospital for a month and was given large doses of potassium iodide, but no change occurred in the size of the spleen.

Operation.—This was performed by one of us (R. H. R.-I.) under gas-and-oxygen anaesthesia (Dr. Duigan). The spleen was exposed by a V-shaped incision. The head of the pancreas was found to be closely adherent to the pedicle of the spleen. There were some adhesions, which were ligatured, between the spleen and the stomach and kidney. The pedicle was carefully divided and the spleen removed without any excess of bleeding. The wound was closed with silkworm-gut sutures to the skin surface.

Progress.—The jaundice disappeared within a week and recovery was uneventful. The patient was discharged to a convalescent home on July 27, 1936. In October, 1937, she had grown and put on weight, and was more normal in appearance, without jaundice, though the tonsils were very large. A blood count showed: red cells, 4,990,000 per c.mm.; haemoglobin, 90 per cent.; colour index, 0.9; white cells, 17,000; reticulocytes, 0.07 per cent. The differential percentages were: eosinophils, 4.5; metamyelocytes, 1.5; neutrophils, 55.5; large lymphocytes, 2; small lymphocytes, 35.5; monocytes, 2.5. In the film there was slight anisocytosis, and most of the red corpuscles appeared smaller than normal. Poikilocytosis was slight, and no polychromasia, punctate basophilia, or nucleated forms were present. The fragility began at 0.4 per cent. and was complete at 0.32 per cent.—less than before operation and only slightly above a normal control.

Case II

A boy aged 7, brother of Case I, was admitted to hospital on May 22, 1936, with a diagnosis of acholuric jaundice and splenomegaly. He had been a full-time normal baby, weighing 8 lb., and was breast-fed. Jaundice persisted from birth, and he also had measles when 4 years old. He was always tired. The jaundice varied somewhat, and he had frequent attacks of sickness with pain in the abdomen, sometimes being constipated. The stools were normal in colour.

Examination.—He had an adenoid facies, with an appearance of having a large head; measurement, however, gave a circumference of 20¾ inches (normal for age). His weight was 49½ lb. His intelligence was rather below the average. There was general slight jaundice, which included the conjunctivae. Petechial haemorrhages appeared on arms, legs, abdomen, and chest. The left tonsil was larger than the right. The upper and lower central incisors were notched along the cutting edge, but there was no suggestion of

syphilis. No enlarged glands were observed, and the thoracic organs were normal. The spleen was enlarged to half an inch below the level of the umbilicus and as far as the midline, while the liver edge was palpable below the costal margin. The urine was clear, natural in colour, and contained no bile, but urobilin was present in small amount. There was no deposit. The blood count was as follows: red cells, 4,230,000 per c.mm.; haemoglobin, 64 per cent.; colour index, 0.7; white cells, 9,500. The differential count showed: polymorphs, 28 per cent.; lymphocytes, 62 per cent.; monocytes, 10 per cent. The red blood corpuscles were small, there was marked punctate basophilia and polychromasia; platelets were present but not abundant. The icteric index was 32 units. The Wassermann and sigma reactions were negative. Fragility of the red cells began at 0.6 per cent. saline and was complete at 0.32 per cent. A normal control done at the same time began at 0.32 per cent. and was complete at 0.28 per cent. Under observation the spleen became very slightly smaller and the jaundice less marked.

Operation.—This was performed by one of us (R. H. R.-I.) on July 6, 1936, under gas-and-oxygen anaesthesia given by Drs. Duigan and Alsop. The abdomen was opened by a V-shaped incision; the spleen was very large, and was adherent to the stomach and kidney, the hilum being closely involved with the tail of the pancreas. The adhesions were divided, the pedicle ligatured and divided, and the spleen removed without loss of blood. The wound was closed and strengthened with silkworm-gut sutures. The wound healed well and the jaundice disappeared after the third day. The patient was discharged on August 1, 1936.

In October, 1937, he was a well-nourished boy without jaundice, and on examination his blood count was as follows: red cells, 5,020,000 per c.mm.; haemoglobin, 94 per cent.; colour index, 0.94; white cells, 18,800 per c.mm.; reticulocytes, 0.2 per cent. The differential count gave the following percentages: eosinophils, 4; metamyelocytes, 0.5; neutrophils, 62.5; lymphocytes, 29.5; monocytes, 3.5. The film showed slight anisocytosis and poikilocytosis; the corpuscles were small, but no polychromasia or punctate basophilia was present. The fragility was less than before the operation, but was not normal.

Description of the Spleens

Case I.—The organ was about five times the normal size and weighed 1,314 grammes. It had shrunk considerably from loss of blood. The substance was firm and was deep red on section; the capsule was slightly thickened. Malpighian bodies were difficult to identify, but trabeculae were easily seen, and some of them showed reddish opaque points of the siderotic or Gandy-Gamna nodule. Histologically several of these showed thick mycelial fibres, some undergoing calcification. In a few instances these fibres appeared to be in process of absorption. Eosinophils were present everywhere in the splenic tissue. It was possible to excise thirty-six of these nodules under aseptic precautions. They were ground up with a little broth in a sterile mortar and inoculated upon twenty-four whooping-cough agar plates and a dozen tubes of the same medium. After a week one plate suggested a growth of actinomyces, and after four weeks the greater part of the surface was spread over with an actinomyces growth, salmon pink in colour and adherent to the underlying medium. The plates otherwise were sterile except for a few colonies derived from air contaminations.

Case II.—The organ preserved its shape and was three times the normal size—8 in. by 4 in. by 3 in. The capsule was turgid but not thickened. Numerous minute buff-coloured siderotic (Gandy-Gamna) nodules could be identified in each cross-section of the spleen. The pulp was congested and moderately firm. Malpighian bodies could be distinguished only with difficulty. As in Case I the procedure was adopted of grinding up a number of excised nodules in broth. Altogether the inoculations were made on fifty-one tubes of various media, solid and liquid, and eleven whooping-cough plates. Except for a few obvious contaminations these proved sterile, observed during a period of several months.

Description of the Organism

Subculture on broth after one week's incubation at 37° C. showed small flocculent colonies at the bottom of the tube. On the surface of the broth was a pellicle composed of small spherical orange colonies covered with a layer of white aerial mycelium. The appearance so strikingly resembled that of a strain of *Actinomyces caprae* obtained from the national collection of type cultures that parallel series of cultures of both organisms were made on whooping-cough agar (as used in the Serum Institute at Copenhagen), litmus milk, Dorset's egg medium, and blood agar, on which *Actinomyces caprae* shows its most characteristic features. Both organisms presented identical appearances, as follows: on whooping-cough agar, after seven days' incubation at 37° C., there were numerous orange colonies which had become confluent. The surface was much heaped up, and was covered by a layer of white aerial mycelium. After three weeks the colonies were heaped up still more and the aerial mycelium had turned salmon pink. On litmus milk, after one week at 37° C., the growth on the surface was pale orange. After a month the milk was peptonized. On blood agar, after a week's incubation at 37° C., there appeared small cream-coloured colonies covered by a thick layer of white aerial mycelium. No haemolysis occurred. After one month the colonies had extended so as to produce a thin margin, but there was no haemolysis. On Dorset's egg medium, after a week's incubation at 37° C., there were irregular pimple-like orange colonies covered with a thick layer of aerial mycelium.

Morphologically the strain belongs to Group IIa of Orskov's classification in that after twelve hours at 37° C. the mycelium breaks up into rods and cocci of various sizes and there is early formation of aerial mycelium. The breaking up of the threads begins with the appearance of fine transverse division lines, and the segments which ultimately form are displaced at different angles from one another. The same displacement occurs in the aerial mycelium.

Staining Properties.—The organism is Gram-positive (Claudius's method), and stains readily with haematoxylin, carbol fuchsin, and malachite-green. Parts of the mycelium are acid-fast.

Pathogenicity.—*Actinomyces caprae* is pathogenic for rabbits and guinea-pigs, and Dr. R. L. Vollum kindly undertook to make injections of both strains into these animals. Two guinea-pigs and two rabbits were injected subcutaneously. All the animals killed after three weeks showed subcutaneous abscesses, the strain from Case I producing slightly larger lesions than *Actinomyces caprae*. In all abscesses colonies of actinomyces were found on microscopical section.

Discussion

We are unable to explain the occurrence of *Actinomyces caprae* in the cultures from the excised spleen of Case I except as a pathogenic agent in intimate relation to the splenic tissue. It is inconceivable that it could have been an accidental invasion or contamination. The reason why only one plate was infected is one that concerns the isolation of actinomyces in known cases of this infection:

many specimens have to be taken and but few are positive. The number of cases, however (now amounting to thirteen), from which actinomyces has been obtained from the excised spleen or blood in acholuric jaundice, splenic anaemia, and Banti's disease makes it probable that the present organism bears an aetiological relation to the disease.

This is the first occasion on which a known pathogenic species of actinomyces has been isolated from cases of jaundice. It also appears to be the first occasion on which *Actinomyces caprae* has been found in a human case. *Actinomyces caprae* was first isolated from the lung of a goat by Silberschmidt (1899). Galli-Valerio (1912) obtained it from the same source.

An attempt has been made to identify agglutinin to *Actinomyces caprae* in the blood of the patient. The organism is particularly difficult to emulsify. A thin emulsion, however, made by continual shaking of a twenty-four-hour broth culture showed no agglutination as tested against the serum of Case I. The serum of Case I added to a broth culture of the organism increased the rate of growth and brought out more prominently the characteristic colour of the organism as compared with six normal control sera. Again, the siderotic nodules in the spleen on first exposure were a buff colour, but on being incubated in culture tubes under aerobic conditions they assumed the same tint as an old culture on agar.

The patients come of peasant stock and were born in a cottage which had been part of an old farm; it is said to have been very insanitary, and has since been pulled down. A neighbour used to keep ten to twelve goats, and occasionally these used to stray into the garden of the cottage occupied by the patients. There is no history of their having drunk goats' milk.

Summary

Two cases of acholuric jaundice are described in which splenectomy had the effect of completely relieving the jaundice, restoring the haemoglobin and number of red corpuscles to normal, and diminishing the fragility. From the spleen of one of these patients an organism was isolated which gave the characteristic reactions of *Actinomyces caprae*. It is concluded that this organism was an essential pathogenic agent in the production of the disease.

[Note.—Since the above was written a sister of the patients (aged 17), referred to in the text as normal, has come under observation with jaundice, splenomegaly, and a haemoclasic crisis.]

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On June 16 King Gustaf V of Sweden will celebrate his eightieth birthday, and a national subscription has been opened to celebrate the occasion. In accordance with the King's own desire the funds collected will be used for research into and for combating infantile paralysis and rheumatic diseases. Subscription lists have been issued throughout the country and also in Swedish Legations and Consulates abroad, thus giving an opportunity to Swedes, whether at home or in foreign countries, to contribute. A similar appeal on the occasion of King Gustaf's seventieth birthday brought in the splendid total of just over 5 million kronor (£275,000 at par). The fund on that occasion was earmarked for cancer research and the establishment of cancer clinics. Large sums from this fund have been spent on purchase of radium, and some of the projected clinics have already been opened.

FAMILIAL CLUBBING OF THE FINGERS AND TOES

BY

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Although it is not uncommon to find clubbing of the fingers in the absence of apparent cause (I have seen two instances during the past year), reports of such cases are infrequent, but they have been described by Mangelsdorf (1885), West (1897), and Lewy (1921). Decloux and Lippmann (1902) recorded the occurrence of clubbed fingers and toes in a man aged 55 and in his sister aged 30; there were sixteen other brothers and sisters, who were said to be unaffected, as were their parents and the man's children. None of these was seen. The affected pair said that the condition had been present since birth; neither had any pulmonary or cardiac disease. Weber (1919) put on record the cases of twin brothers aged 25 with clubbed fingers; another brother, aged 30, was not seen, but was said to be likewise affected. All were quite healthy.

Cases occurring in Two Successive Generations

Cases occurring in two successive generations have been recorded in six instances. Fraentzel (1888) described a healthy man showing "drumstick" fingers, his father and his sister having the same condition. Freytag (1891), in his monograph on clubbed fingers, mentioned two instances of father and son being affected in the absence of disease. Weber (1919) found clubbing of the fingers and toes of a man aged 25 and his father; three brothers and a sister had a like condition. Crouzon and Gutmann (1931) reported clubbed fingers in a healthy man aged 30; a radiograph of his hands showed normal bones. The father had been similarly affected, but had suffered from a chronic "broncho-pulmonary" condition. Kayne (1933) published a record of a family in which two brothers, a sister, and the father had clubbed fingers and slightly clubbed toes; the mother and four sisters were normal. The patient's Wassermann reaction was negative, as was a radiograph of his chest. Radiography of his hands showed only slight splaying of the terminal phalanges. In the same year Ragins and Freilich (1933) described a family in which a man, his sister, father, and a paternal uncle all had clubbed fingers and toes.

Witherspoon (1936) reviewed the articles on the subject and reported a negro family in which four brothers and their father had clubbed fingers and toes. One of the brothers had two children, aged 2 months and 17 months, who were found to have pronounced thickening of the volar pads of the fingers and thumbs, but no true clubbing. A maternal half-brother was said to be affected. The mother and four sisters had normal fingers and toes. Wassermann reactions were negative, and radiographs of the chest were normal in all cases examined. Neurath (1932) described four families in which clubbing of the thumbs and big toes was inherited as a simple Mendelian dominant. The clubbing in these cases was due to a bony malformation of the terminal phalanges, and was a special variety of brachyphalangia; for this reason it is not comparable with the present series.

Anomalous Inheritance

In the foregoing reports the inheritance is straightforward, from father to son; but there are two families described in which the inheritance is apparently anomalous.

In 1902 Newton and Mercellis published the record of a Hungarian family in which a man aged 33, his four children, his brother, and his paternal grandfather had clubbing of the fingers and toes. The patient's father, who had been asthmatic, had died of cholera at the age of 36, and was said to have had normal fingers. On the paternal side the family had suffered from cough and shortness of breath, and had as a rule died of some lung complaint. The patient, who at this time was suffering from an indolent axillary abscess, said that his fingers and toes had been clubbed since birth. He had contracted a venereal sore at the age of 31, and had been refused admission to the Army because of a "weak chest"; he had a chronic morning cough, otherwise his health was good. Three of his four children had died in infancy, but all were said to be affected. The remaining child, a girl aged 4, was found to have clubbed fingers and toes, and also "acute endocarditis." In 1911 von Eiselsberg described a man aged 30 with clubbed fingers and toes, which he had had "since birth"; a grandfather, an uncle, and a sister were said to be similarly affected. Nothing was said about the man's parents or other relatives.

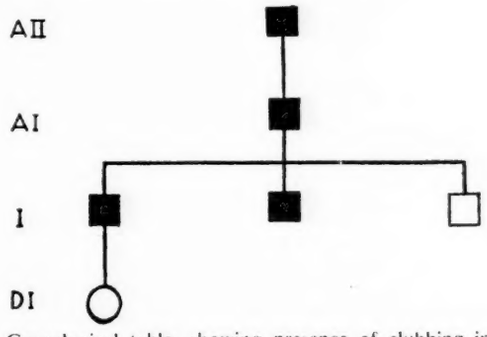
The following report of a case admitted to St. James's Hospital, Leeds, shows the condition to have been present in three successive generations.

Case Record

A man (I, 2 in the pedigree) aged 42, a piano-tuner, was admitted on April 10, 1937, suffering from a left hemiplegia, which had come on suddenly the previous day. Before this he had enjoyed good health, apart from occasional attacks of pain and swelling in his right great toe, which he had been told was gout, and several momentary bouts of dizziness during the month preceding the stroke. On examination it was found that his heart was enlarged, the apex beat was 4½ inches from the mid-sternal line in the fifth left interspace, his blood pressure was 230/150 mm. Hg, the Wassermann reaction was negative, and the urine was normal. Apart from the hemiplegia there was nothing of note except an unusual degree of clubbing of the fingers and toes. Questioned regarding these, he said that they had started to enlarge at the age of 21, and had quickly attained their present size, which merited the epithet "drumstick"; the nails had a livid tinge, and were curved like an inverted watch-glass. A radiograph of the chest showed left ventricular hypertrophy and normal lung fields; radiography showed no changes in the bones of the hands. The patient was aware of his abnormality, and said that his elder brother and his father had the same condition. His brother (I, 1 in the pedigree), aged 53, was next interviewed. He had lost three fingers of one hand in an accident, but the remaining fingers and his toes showed the same degree of clubbing as his brother's. He said that he had had the condition as long as he could remember. His health has always been good apart from recent slight winter cough, and he has no physical signs of disease at present. The third brother (I, 3) was not seen, but was said to be unaffected; he has been out of touch with the family for twenty years. The father (AI) died at an advanced age of cancer of the throat; both of his sons agreed that he had clubbed fingers. Nothing was remembered of the grandfather (AII), but a battered photograph of a family group showed quite plainly that both he and the father (AI) were affected. The patient's niece (DI) aged 29, was seen and was found to be normal.

This is the second family to be described in which the deformity runs directly through three generations. In the case of a hereditary condition this is sufficient to show that the abnormality is probably inherited as a simple Mendelian dominant: all the previously reported instances conform to this hypothesis, with the exception of those which I have called anomalous. In the family described by Newton and Mercellis the patient said that his paternal grandfather was affected, but that his father was not. Assuming that he was not mistaken, it is possible that the father had died before the anomaly appeared, as in one of the cases that I have described the condition was not evident until the age of 21, and in one of West's cases not until after 50, though this was not shown to be familial. Alternatively the clubbing may have arisen out of the lung

The patient's hands, showing the degree of clubbing of the fingers.



Genealogical table, showing presence of clubbing in three successive generations.

diseases to which this family was subject, although this seems unlikely. In von Eiselsberg's report no information is given except the bare facts abstracted above, so it does not afford enough material for discussion; but the argument that the patient's father or mother may have died before their fingers became altered applies here also.

Conclusion

As in most cases the normal members of the families have not been recorded it is impossible to compare their numbers with the numbers of affected persons; in the fully reported families the ratio of affected to unaffected persons is 15:10, which is as near to the 1:1 ratio of Mendelian dominants as one can expect with such a small number. At all events it can be said that extreme clubbing of the fingers and toes may occur in the absence of organic disease, and that the probability is that in some of these cases the condition is inherited as a simple Mendelian dominant.

My thanks are due to Dr. H. G. Garland and Dr. S. J. Hartfall for their advice and criticism.

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TREATMENT OF OBLITERATIVE VASCULAR DISEASE BY INTERMITTENT VENOUS OCCLUSION

FURTHER OBSERVATIONS

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We have already made a preliminary report on the use of intermittent venous occlusion in the treatment of obstructive vascular disease of the limbs (1937). The method was originally introduced by Collens and Wilensky (1936a), and was based on the observation of Lewis and Grant (1925) that following venous obstruction there is a reactive hyperaemia in the tissues distal to the obstruction, lasting for a period varying from one-half to three-quarters of the period of occlusion. As already described, the apparatus consists of an electric pump which raises the pressure in a cuff surrounding the affected limb. The cycle is controlled from the electric motor in such a way that the pressure is maintained for two minutes at two-minute intervals. The pressure in the cuff is regulated by a safety-valve, and can be varied from 20 to 120 mm. Hg. We have had the opportunity of applying this method of treatment to a variety of cases, but it is our intention to limit the discussion to the results obtained in cases of obliterative vascular disease only.

Defective peripheral circulation can be regarded as being due to (*a*) obstruction of the lumen of the vessel by organic disease—thrombo-angiitis obliterans or arteriosclerosis obliterans; (*b*) excess of vasoconstrictor tonus, a defect which operates principally on the smaller arteries and arterioles; and (*c*) a combination of the two preceding factors. A clear definition of the relative importance of these factors is necessary in all cases because they call for distinctive forms of treatment. The clinical investigation of these cases should include:

Points in Clinical Investigation

1. *A Full History.*—Particular attention should be paid to a history of intermittent claudication, nocturnal pain or coldness, pallor on exertion or elevation of the limb, and trophic changes. The degree of sweating, the rate of growth of the nails, and the consumption of tobacco should also be ascertained.

2. *Careful Palpation of the Limbs Exposed to the Same Conditions.*—By this means any significant difference in temperature between the two sides can always be detected. The presence of normal pulsation in the peripheral vessels excludes obstructive disease of the main arteries, whereas the absence of such pulsation is not diagnostic of obstructive disease owing to the relative frequency of anatomical anomalies in the course of the smaller arteries. An approximate estimate of the severity of the obstruction to the circulation can be obtained by the venous filling test of Collens and Wilensky (1936b). This test consists in the observation of the rate of filling of the veins of the dorsum of the foot when the limb is transferred abruptly from the elevated to the dependent position. The normal time required for filling is eight to ten seconds. A more accurate index is provided by the reactive hyperaemia test described by Pickering (1933). The limb is placed in water at 35° C. for ten minutes and is then elevated until blanching occurs. A cuff surrounding the proximal part of the limb is now inflated to a pressure greater than the systolic pressure. The limb is replaced in the hot water for a further four and a half minutes; it is then dried, put in a horizontal position, and the pressure released. A bright red hyperaemic flush courses rapidly down the limb, and should reach the toes in a few seconds if there is no vascular obstruction. This test is of value both in diagnosis and in the estimation of progress, but as it necessitates a prolonged period of circulatory arrest we have hesitated to use it in cases with severe vascular obstruction.

3. *Oscillometry.*—The oscillometer gives a valuable indication of the degree of pulsation at all levels, particularly those in which the vessel is not accessible to palpation. In this way the site of the obstruction can be approximately gauged. The instrument consists of an air-tight box containing an aneroid capsule so arranged that the pressure in the blood-pressure cuff connected with the instrument is equal to that on both sides of the capsule. The cuff is applied to the limb, and readings are taken at intervals of 10 mm. from 240 to 0 mm. To take a reading one side of the aneroid capsule is cut off from communication with the blood-pressure cuff by closing a valve, and the extent of the pulsations is measured by the excursions of the needle connected to the aneroid. The instrument is not accurate enough to enable significance to be attached to small variations, and although of great value in the diagnosis of obliterative disease is of little use for estimating progress.

4. *Estimation of the Degree of Nervous Vasoconstriction.*—The patients are exposed for a period of an hour in a warm room the temperature of which is controlled thermostatically. The temperature of the digits is then recorded thermo-electrically, after which sympathetic inhibition is induced by the method of Landis and Gibbon (1933) and the temperature again recorded. The degree of sympathetic tone is shown by the difference between the two temperatures. Landis and Gibbon secure the release of vasoconstrictor tonus in the lower limbs by the immersion of the arms in water heated to 47° C., and we have found this method entirely satisfactory, although we occasionally employ spinal or regional anaesthesia.

Classification of Cases

On the basis of the foregoing tests we have classified our cases into three groups: (I) those showing a normal response to sympathetic inhibition and normal oscillometric readings; (II) those with a very deficient rise in temperature and defective oscillometric readings; and (III) those with only slight restriction of temperature rise but with a considerable deficiency in oscillometric readings. Group I comprises the cases associated with vasospasm and without obstruction; these have been excluded from our present series. Group II includes the cases of obliterative arterial disease with considerable deficiency in the collateral circulation. Group III comprises those cases of obliterative arterial disease with a good collateral circulation that are often attributed to a combination of vasospasm with obstruction.

Table of Results in a Series of Thirteen Cases

Case No.	Sex and Age	Disease	Smoking	Site of Block	Nocturnal Pain	Gangrene	Claudication Distance		Group	Temperature Rise	Treatment Duration	Result
							Before	After				
										°C.	Hours	
1	M., 60	A.S.O.	Mod.	R.P.A.	Yes	No	250 yds.	500 yds.	II	2	460	A C D
2	M., 36	T.A.O.	„	L.F.A.	No	„	150 yds.	800 yds.	II	3	350	C D
3	M., 48	„	Heavy	L.P.A.	Yes	Yes	300 yds.	2 miles	II	3.6	500	A B C D
4	M., 49	„	„	R.P.A.	No	No	800 yds.	Unlimited	III	2	400	C D
5	M., 67	A.S.O.	Mod.	L.F.A.	Yes	Yes	50 yds.	500 yds.	II	1	490	A B C D
6	M., 45	T.A.O.	Heavy	R.P.A. L.P.A.	No	No	100 yds.	800 yds.	III	0 0.5	50 450	C D
7	M., 46	„	Light	L.F.A.	„	„	50 yds.	400 yds.	II	1.8	350	C D
8	M., 76	A.S.O.	„	R.F.A. L.P.A.	Yes	Yes	90 yds. —	400 yds. —	II	2.7 2.2	400	A B D
9	M., 75	„	Nil	R.F.A.	No	No	200 yds.	?	III	Nil	100	See text
10	M., 50	T.A.O.	Heavy	L.F.A.	Yes	Yes	50 yds.	?	II	1	440	See text
11	M., 65	A.S.O.	Mod.	„	„	„	—	—	II	Nil	300	A B
12	F., 60	„	Nil	R.P.A.	„	„	—	—	II	„	420	A B C
13	F., 68	„	„	R.P.A. L.P.A.	No	No	150 yds.	440 yds.	II	„	250	See text C

T.A.O. = Thrombo-angiitis obliterans. R.P.A. = Right popliteal artery. L.P.A. = Left popliteal artery. A.S.O. = Arteriosclerosis obliterans. L.F.A. = Left femoral artery. R.F.A. = Right femoral artery. A = Relief of nocturnal pain. B = Healing of gangrene. C = Increased walking capacity. D = Increased skin temperature.

Results

Recent cases still under treatment have not been included in the series of thirteen here reported. It will be noted that improvement occurred in all those treated with intermittent venous occlusion with the exception of Case 10. Nocturnal pain was present in six patients, including Case 10, and invariably relief of pain was obtained, in some instances within a few hours of starting treatment. It is interesting to note that although nocturnal pain was completely relieved in Case 10 the condition did not further respond to treatment.

Intermittent claudication was present in all but three patients (Cases 8, 11, and 12), one of whom was unable to walk because of diabetic skin lesions, another because of coronary disease, and the third because of recent amputation of the other leg. In the remaining ten patients, with the exception of Cases 9 and 10, there was a very satisfactory increase in walking capacity, in one case even to the extent of allowing the patient to take part in deer-stalking. Three patients (Cases 2, 5, and 7) were completely incapacitated when first seen, and are now able to work.

Six patients (Cases 3, 5, 8, 10, 11, and 12) showed degrees of gangrene varying from localized areas in Cases 3 and 5 to more extensive lesions. Thus Cases 8 and 10 had extensive gangrene of the left heel; Case 11 had lost the other leg through gangrene a month previously and showed a gangrenous area on the remaining big toe; and in Case 12 there was gangrene of the first and second toes. In all these cases treatment was successful in healing the gangrenous area without loss of tissue except in Case 10, where despite intensive methods healing could not be promoted and amputation was advised.

Discussion

It will be seen that apart from the clinical improvement the skin temperature has increased in practically every case. All cases were examined under the same constant temperature conditions before and after treatment. Sympathetic inhibition was induced, and the figures quoted represent the rise of temperature following treatment.

With the exception of Cases 4, 6, and 9, all belong to Group II—that is, those with a poor collateral circulation. In this group improvement can only be effected by assisting the formation of an efficient collateral circulation. It is therefore to be presumed that the poorer the initial collateral circulation the more dramatic will be the results of treatment, provided always that the condition is not so far advanced that the patient is no longer susceptible to treatment of any kind, as in Case 10. On the other hand, as might be expected, it has been our experience that certain of the cases in Group III with an initially very good collateral circulation would be unlikely to benefit from a form of treatment designed to develop a better collateral circulation. We therefore consider that in cases of this type treatment by intermittent venous occlusion is not indicated; arteriography with thorotrast, however, may be carried out to establish the nature and site of the local obstruction. Case 9 is an example of this type where intermittent venous occlusion failed to improve the already satisfactory collateral circulation. Arteriography revealed a localized block in the superficial femoral artery, and the excision of this segment of the vessel was followed by the complete relief of symptoms. It may be possible by means of intermittent venous occlusion so to improve the collateral circulation in certain cases of Group II that they may be amenable to similar treatment if symptoms are still present. We find that the response to treatment is better in the younger patients, who are mostly suffering from thrombo-angiitis obliterans, due doubtless to the greater capacity of their smaller collateral vessels to dilate.

While the results of treatment have been satisfactory, we have been unable to observe any actual increase in skin blood flow when specially designed foot calorimeters have been employed. Allan and McKechnie (1937), using a thermo-electric method, were unable to demonstrate any rise in skin temperature. However, it must be realized that both these methods indicate only the skin blood flow. Studies are being continued with particular reference to procedures better calculated to record muscular blood flow.

It is the consensus of opinion that in thrombo-angiitis obliterans any form of treatment will in large measure

be nullified by persistence in the use of tobacco. We therefore insist that our patients should stop smoking.

Summary

1. A further series of cases treated by intermittent venous occlusion has yielded encouraging results.

2. The treatment is especially suitable in cases of obliterative arterial disease with a poor collateral circulation.

We are again indebted to Professors D. M. Dunlop and Sir John Fraser for their interest and help, and to the physicians and surgeons of the Edinburgh Royal Infirmary, who have kindly permitted us to treat their patients. The work was carried out during the tenure of a Syme Surgical Fellowship (J. J. M. B.) and the Shaw Macfie Lang Fellowship (W. M. A.). We also gratefully acknowledge a grant from the Earl of Moray Endowment towards expenses.

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FOOD POISONING*

BY

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To the clinician food poisoning has a definite significance. It refers to a state of ill-health resulting from food which contains some abnormal or noxious content. Although the condition may be brought about by various agents, these are definable and produce manifestations which, within the limits of clinical medicine, are fairly constant for the agent concerned. To the lawyer, on the other hand, the term "food poisoning" has no significance; it is not even a legal expression, though were it not for the legal aspect the whole problem would be less complicated.

Responsibility of the Food Purveyor

The Food and Drugs Administration Act makes it an offence to sell to the prejudice of the purchaser any article of food which is not of the nature, substance, or quality of the article demanded. There are provisions in public health legislation directed against the offering for sale of meat, fish, milk, and other foods which are diseased, unsound, unwholesome, or otherwise unfit for food. Gross conditions such as these come within the purview of the sanitary authorities, which have special machinery for dealing with them, rather than within that of the practitioner. Even if the food be eaten it does not follow that poisoning would result.

The purchase of food implies a warranty that it is fit for consumption. Actions for damages for food poisoning (to use that common but often misused expression) are based either on negligence or on breach of an implied warranty of fitness. The provision in the Sale of Goods Act, 1893, material for this purpose is as follows:

> "*Sect 14.* (1) Where the buyer, expressly or by implication, makes known to the seller the particular purpose for which the foods are required, so as to show that the buyer relies on the seller's skill and judgment, and the goods are of a description which it is in the course of the seller's business to supply . . . there is an implied condition that the goods are reasonably fit for such purpose. . . ."

Whether the case is based on the implied condition that the food is fit for consumption or on the breach of the seller's duty to his customer to exercise care, damages are recoverable. In so far as the ground is negligence it is now clear that the legal responsibility goes back beyond the immediate supplier of the article of food to its ultimate manufacturer. This was decided in 1932 by the House of Lords in the case of Donoghue *v.* Stevenson, overruling the Court of Sessions in Scotland.

A shop assistant had purchased at a café in Paisley a bottle of ginger beer. The bottle was of opaque glass. She drank some of the contents, and when the remainder was poured into the tumbler a decomposed snail made its appearance. The woman claimed damages from the manufacturer, averring that the nauseating sight, coupled with the impurity of the liquid she had consumed, had caused her shock and gastro-enteritis. The House of Lords decided by three opinions against two that the manufacturer of food, medicine, or the like, sold by him to a distributor in circumstances which prevented the distributor or the ultimate consumer from discovering any defect in it by inspection, is under a legal duty to that consumer to take reasonable care that the article is free from defect likely to cause injury to health.

When the claim is based on the implied warranty it is immaterial that the purveyor of the food could not himself have discovered the defect. He has warranted to supply safe food, and this warranty is absolute. This is established by the case of Frost *v.* Aylesbury Dairy Company, which came to the Court of Appeal in 1905, in which milk was held to contain typhoid germs. The existence of such germs could only have been discovered by prolonged investigation, so that the defect was not discoverable at the time of sale, but the plaintiff's right to damages under the implied condition of fitness was upheld. The question of negligence, therefore, need not arise, and I presume that is why the usual course is to found the claim on implied warranty.

The Wide Field of Possible Complaint

Man must eat to live, and man is one of the few animals with widely variable tastes. Hence arise innumerable possibilities for complainants. There are various illnesses of cryptic origin which puzzle medical men and in which the tendency of the sufferer is to ascribe the blame to a meal just taken, all the more so if the meal included some article of diet, such as mushrooms, lobster, or ice-cream, which the public mind associates with disease. Again, one man's food is another man's poison, and individual idiosyncrasy adds to the difficulty of proof of damage or disproof of causal connexion.

The crux of the question when a person alleges that he has been affected adversely by consuming deleterious food is whether he has actually suffered from such food, and if so whether the defect in the food was due to negligence in its manufacture or supply. Both these are questions of fact, the first essentially, and the second largely, material for the medical witness. The fraudulent claim is common, and often based on the supposition that the big firms are rich and will pay to avoid publicity. At the same time, there is also the individual who honestly believes that he has been made ill by some special article of food. He is perhaps influenced by a chance observation by his medical attendant that he might have taken some food which had upset him. He instantly translates "food upset" into "food poisoning." Sometimes the medical man himself is a credulous person, and accepts the patient's statement of his subjective symptoms—as, for example, diarrhoea and vomiting—without verifying it. Yet the essence of proof of poisoning rests on a detailed investigation in the early stages of the illness.

A legal action once started may drag on for a long time before the case is actually heard, and as time goes on the patient's symptoms, as imagined by him afterwards, tend to multiply. Generally, however, this is to the advantage of the defendant, for the symptoms become so numerous and complicating as to contradict one another. To add to the difficulty, a difference of opinion may arise among the experts called in—a difference apt to lead to the discredit of expert evidence. I suggest that the difference is more

* The substance of a paper read before the Medico-Legal Society on November 25, 1937.

apparent than actual. The fault or the deliberate tactics of counsel may prevent the truth from emerging. For example, it is the truth that food poisoning produces gastro-enteritis, but this must be modified by the undoubted fact that gastro-enteritis results from many different causes besides food poisoning. If medical evidence were given in the form of answers to an intelligent questionary there would appear more agreement than disagreement amongst medical experts. But counsel may not desire to achieve such agreement, and the zeal for victory rather than for the elucidation of truth may bring even medical witnesses into unwitting partisanship.

How Foods can Affect Health Adversely

A food may be deleterious either because of its own quality or of the constitution of its consumer. Even unaccustomed foods, good in themselves, or undesirable mixtures of harmless ingredients, may yield the same results as food defective in quality. Unwise drinking or extreme variations of temperature may produce a dyspeptic state without any fault in the food. Certain foods may affect in a specific manner individuals susceptible to them, gastro-enteritis may arise, with urticaria, alarming to the sufferer, but again not poisoning. Idiosyncrasy may manifest itself at any period—a point difficult to make clear to the person whose mind is filled with the suspicion that he has been poisoned by food. Obviously illness due to idiosyncrasy, although technically a form of food poisoning, cannot be laid at the door of the purveyor of the food. Nor is he responsible for the consumer's digestive weakness or his reckless dietary admixtures.

Food poisoning proper is the result of the presence of some noxious agent in the food. In the form in which it comes most frequently to medical attention it is due to the presence of specific germs or toxins originating, if in meat, in the animal from which the meat was taken or from some carrier handling the meat, or from sewage, as in oysters contaminated with typhoid germs, or in milk handled by a carrier of scarlet fever or typhoid, or, as has been learned recently, in pastries and piecrusts infected by a common staphylococcus. Again, there may be contamination of potted meats by a bacillus rare in this country—namely, the *botulinus*—leading to poisoning of a characteristic nature, with acute and rapidly fatal symptoms of paralysis of the nervous system. The medical jurist, however, is concerned with a much wider group than this, and his function is to prove whether a train of symptoms is the result of food unfit for human consumption.

The first inclination is to view the last meal with suspicion ; but the last meal may have had nothing to do with the symptoms. Certain foods, such as shellfish, mushrooms, and ice-cream, are often suspect, and the sufferer is apt to go back several meals to locate such an article of diet, but here again the suspicion may be quite unfounded. Surmise is not proof, and it is not right to work on such generalizations as that oysters cause skin diseases or sausages gastro-enteritis. Many other possible causes enter into the story.

Proof of Food Poisoning

The various groups of poisons act in fairly constant ways. Each of the alkaloids produces its own train of symptoms by its selective action on the body, generally the nervous system ; for example, strychnine produces spasms and twitchings, nicotine acts on the nerve-endings of the heart, morphine acts on the higher centres in the brain. The toxins of poisonous fungi which are eaten in mistake for mushrooms act directly and with great severity on the nervous system as well as on the gastro-intestinal tract, and symptoms of giddiness, stupor, convulsions, and coma are pronounced. I can find no evidence that severe and long-persisting skin diseases have been produced by mushrooms, though that has been the basis of many claims. In one unsuccessful action concerning alleged mushroom poisoning it was stated that the diarrhoea and vomiting had accompanied an erythema multiforme which persisted, but this picture is totally different from the recognized results of poisoning by toxic fungi. Food poisoning as generally understood is characterized by gastro-enteritis, with pain, vomiting, and diarrhoea. It is an acute illness, ending rapidly, generally without fatal result, and leaving no after-effects.

The causes of gastro-enteritis are numerous, and therefore it is essential that proof of the food eaten and its causal connexion with the symptoms should be obtained in the early stages. The previous condition of the patient, the onset of the illness, and the time elapsing since the suspected food was taken are all-important. These circumstances should indicate whether there is a suspicion of a bacterial infection. Bacterial food poisoning has an incubation period during which the bacteria form toxins, and therefore several hours elapse before symptoms are manifested, though if the toxins are already present in the food before it is eaten the symptoms appear more rapidly.

It is important to know whether severe diarrhoea and vomiting occurred, also the nature of the flux. On two occasions I have been called to a case of alleged food poisoning following an unusual meal. Fortunately there remained some of the vomitus and diarrhoeic flux, which were typical of haemorrhage from a peptic ulcer, but it was difficult, in the absence of previous symptoms of ulcer, to persuade the patients of the seriousness of the illness and to get them to absolve the food. In another case of vomiting and later intractable diarrhoea the practitioner, without seeing the excreta, diagnosed food poisoning, but it came out in consultation that the claimant had been treated for many months at hospital for ulcerative colitis, which is not associated with food poisoning.

Cases occurring in Groups

A number of cases occurring together in similar circumstances is, of course, highly suggestive of food poisoning. But here again it is well not to jump to conclusions.

In one instance cream was alleged to be the cause of scarlet fever. Two ladies who had partaken of the cream were affected, and their two men companions, who did not partake, did not suffer. But it was found that the same cream was liberally used in sauces of which they all partook. Further inquiry showed that one of the ladies had just left a scarlet fever case, and it was suggested that she transmitted the infection to the other in her greeting kiss, while the men were not so exposed.

Unusual conditions must also be borne in mind in dealing with outbreaks. Recently in London there have been several scattered outbreaks of diarrhoea and vomiting due to the Sonne bacillus of dysentery. Epidemics of sickness and vomiting have also occurred, described under the name of *nausea epidemica,* which cannot be traced to food poisoning. Sometimes agonizing pain is an outstanding symptom, accompanied by vomiting and perhaps some diarrhoea, and as it follows a meal away from home the food is incriminated. But a careful history and examination will point to gall-bladder trouble or some other colic, which may indeed have been aroused by an unusual meal, but here again the purveyor of the food is not blameworthy.

On what grounds, then, can an uncontrovertible diagnosis of food poisoning be made? The symptoms can only point to food as suspect, the suspicion becoming stronger if more than one case occurs and a common origin can be suggested. Proof absolute would be demonstration of the toxic virus itself, and here we have a recognized procedure, often, but not always, successful. This includes the finding of the germs in the excreta and if possible in the remainder of the food, and administration experimentally to laboratory animals. It often happens, however, that the remaining food, or even the excreta, is not obtainable ; then a test may show that the infected individual forms in his blood, after such infection, demonstrable antibodies. In a recent case in which pork chops were alleged to be the cause of the disease, it was on the demonstration of the agglutinins to Gaertner's

bacilli in the blood that the action was decided. There are certain reservations to be made in drawing conclusions from such tests. Previous infections may leave agglutinins in the blood for a varying period, but the discussion of this matter is for the expert. I would stress only the importance of duplication of tests to avoid errors in technique, and the tests should be carried out in laboratories specially equipped for the purpose, or, better still, in a central laboratory, where the stock strains are of recognized accuracy. It must also be remembered that laboratory tests may fail at times owing to long delay in beginning the investigation. That errors can arise owing to the refinements entailed in identification of the bacteria and their products was impressed upon me whilst investigating an outbreak of sore throats following a banquet.

Some sixty of the diners went down with sore throats, in some cases followed by scarlet fever. At first a streptococcus isolated from the throat of the chef was thought to be the causal organism, but later reports from the Ministry of Health laboratories showed that the streptococcus so obtained was not the one associated with the conditions in question. Cream or ice-cream was suggested as the cause of this outbreak, but no bacteriological corroboration was forthcoming. It is obvious that when gatherings take place in a crowded banqueting hall the atmosphere may be such as to encourage the spread of any infection, and I could find no reason to blame the food despite the coincidence of so many cases.

Popular Fallacies about Food Poisoning

It is desirable to rebut certain popular fallacies. Bacteria are not necessarily noxious, nor is decomposing food necessarily poisonous. Many foods are eaten, from choice, in a high state of decomposition. It is a fallacy that poisoned food has a bad taste; it is the decomposing food which tastes, and indeed the decomposition is a safeguard, preventing stale food from being eaten, for in stale food dangerous germs may have had time to form their toxins before cooking takes place.

Ordinarily, food poisoning is an acute illness in which the patient gets rid of the poison by vomiting and diarrhoea and is better within a few days, suffering no after-effects. Cases due to toxins which attack the nervous system take a more fatal course, as, for example, in the fatal outbreak of botulism in 1922 at Lochmaree, when all the eight persons who had eaten sandwiches made of potted wild duck paste died.

The source of the infection is important in making investigations. It may come from the animal itself (and if the animal be diseased the whole carcass will be infected, so that there will be widespread incidence of food poisoning); from butchers and others who handle meat actually infected or are themselves carriers of disease germs; or from the fouling by vermin such as rats and mice of cooked food improperly stored.

The bacilli are destroyed by heat and cooking, but the toxins remain unaffected and potent for danger. Hence delay in the canning process after slaughter will allow of toxins being developed and conveyed in the sterilized food. A debatable point has been raised in court as to whether the temperature of cooking is sufficient to destroy bacteria in the depths of meat. Some experiments which were carried out for me appeared to demonstrate that possibility. Minor questions arise such as whether a portion of tinned meat can be infected and not the rest of the meat in the tin. This has been taken to explain an isolated case and the immunity of others who shared from the same container, but I regard it as unlikely in view of the process of canning.

"Psychological" Food Poisoning

Many claims are based upon the discovery of a foreign body in the food, as, for example, a piece of glass or a nail, a slug in a salad, or, as in the case already mentioned, a decomposed snail in a bottle of mineral water. Cases of this kind need looking into very closely. It is not unknown for a cockroach to be produced from a match-box and placed in the soup by the prospective claimant. One case is on record in which a rat's tail had been introduced into a meat pie. This proved unfortunate for the claimant, however, for it was shown in the laboratory that the tail had not been cooked in the cooking of the pie. In one case which I investigated the claimant had been twice successful in contending that he had inadvertently swallowed pins found in food, and it turned out that the failure to expose his fraud was due to a too trusting radiologist. The radiologist, believing the man's story, and seeing the pins in various positions in successive radiographs, which had been taken only in one plane, was completely deceived. Apparently the man knew enough to place the pins on his back in appropriate positions to suit the time intervals. The swallowing of foreign bodies may, of course, be attended by harm, but in most cases the glass or pins are passed through the bowel without damage, and so the matter should end; but it may not so end if a large firm or insurance company is concerned and can be regarded as "fair game" by some claimants.

If a woman finds a slug in a salad and discards it without having tasted any of the food, does that constitute a just claim for damages? It is an unpleasant occurrence, but not enough to cause illness. Had she found the slug while preparing a salad in her own kitchen, would she not have removed it and served the salad? But apparently it is a more expensive slug which makes its appearance at restaurants!

In one case with which I had to do a woman tasted three mouthfuls of a chop, which she said was "tainted," but she followed it with fruit salad and cream, and then came the usual story of vomiting and diarrhoea, pains, and in this case an urticarial eruption with nausea. Her practitioner argued that, although this was not specific food poisoning, the tasting of tainted food by a highly sensitive woman caused an upset of digestive functions of a psychological nature.

Is this possible? And, if such sensitive persons exist, can the food purveyor be justly held responsible for their susceptibilities? Carried to a logical conclusion, such people would be equally upset by the presence of a deformed person or a person of unpleasant countenance in the restaurant. I am inclined to think that if such susceptibility exists it is in no way different from susceptibility regarding certain foods, and should be the entire responsibility of the individual unfortunate enough to possess it.

Medical experts differ regarding these quaint cases of what may be called psychological food poisoning, but to me it seems unfair that damages should be given in such circumstances. I hesitate to dwell upon the medical and legal possibilities if at a modern restaurant crowded with sensitive, fragile, twentieth century females the old nursery rhyme were re-enacted:

> "Four and twenty blackbirds, baked in a pie.
> When the pie was opened, the birds began to sing."

But perhaps the writer of a "Song of Sixpence" properly assessed the amount of the damages!

After-effects of Food Poisoning

A final word must be said on the after-effects of food poisoning. I have referred to a case of ulcerative colitis alleged to have followed poisoning by food, and I have notes of a case in which an attack of appendicitis was said to have followed the eating of tinned salmon. In this case it was obvious that the whole of the symptoms ascribed to the tinned salmon were actually due to the appendicitis. In the case mentioned above in which a woman had merely tasted a tainted chop, it was said that recurrent attacks of urticaria supervened, and for this she demanded compensation, with the proviso that she be allowed to reopen the case at any time within the next ten years.

I regard food poisoning as an acute illness from which the patient makes a rapid recovery, and I cannot believe that chronic states of skin disease and intestinal trouble can follow even an actual case of food poisoning, let alone an imaginary one.

The problems are numerous, and I have touched only on some of them. Each case must be dealt with on its merits. It is obvious that the medical expert called in to weigh evidence must approach the subject in a different manner from the clinician. On the medical expert falls the onus of discovering proof. His outlook must be wider, and he must be careful lest he, too, like possibly the patient or claimant, become the victim of credulity. In view of possible sequels in court he should be prepared to produce all the proofs of his investigations and all the clinical deductions, bearing in mind that in this field especially the time factor is of importance because of the rapidity with which the evidence may disappear.

Clinical Memoranda

Weil's Disease following a Motor-car Accident

Although cases of Weil's disease have been reported in increasing numbers in recent years, it has been suggested (Maxwell, 1935) that all sporadic cases be put on record. I am therefore contributing the following case.

CASE RECORD

X. Y., a man of 55, was driving a saloon motor-car containing two other people and a dog. He failed to take a turning over a canal bridge properly, and crashed into the canal—the Fossdyke Navigation Canal, which is the oldest canal in Britain, being a relic of the Roman occupation. The car came to rest upside down, with only the wheels visible above the water. Bystanders on the canal bank dived in immediately to the rescue. The two passengers—an old lady and her husband, who was partially paralysed—were rescued first, and then the driver, who was therefore immersed for a few minutes, as the doors of the car had to be forced open under water. Artificial respiration was applied to all three on the canal bank, and it was some time before they came round. As soon as they could be moved they were taken by ambulance into Lincoln County Hospital—a distance of about six miles. The two older people were carried in on stretchers, but X. Y. had by that time so far recovered as to walk in. They were all treated for shock and partial drowning. The male passenger made an uneventful recovery. His wife also fully recovered, but for some time was very ill with bronchopneumonia. The driver of the car, whose case is here recorded, improved gradually. He stated that he had swallowed a good deal of the canal water, and often asserted during his illness that he kept on tasting it. Five days after admission he complained of severe cramp-like pain in his legs. On being questioned he gave a history of phlebitis, and said that he had had similar pains before. Except for these pains he continued to be quite well, and was considered fit enough for discharge ten days after admission. On that day he complained of sickness and malaise, and his temperature for the first time was above normal. Two days later he began to vomit, and jaundice was noticed. The next day he was very jaundiced, and complained of pain in his chest and epigastrium. In two days' time herpes appeared on the upper lip, and epistaxis occurred the following day; the jaundice meanwhile continued to deepen. A clinical diagnosis of Weil's disease was made. He died twenty days after admission, fifteen days after first complaining of cramp-like pains in the legs and six days after the appearance of jaundice. The urine contained bile, albumin, pus cells, epithelial cells, and coliform bacilli. The van den Bergh reaction was biphasic.

At necropsy the liver was found enlarged and friable. The left kidney was very soft and friable, and there were haemorrhages into the suprarenals. On naked-eye examination nothing abnormal was found in the stomach, intestines, heart, or spleen. The lungs showed a few old healed tuberculous lesions at the apices and some terminal hypostatic congestion. Microscopical examination of sections from liver, kidney, and spleen showed *Leptospira icterohaemorrhagiae*. The organism was not seen in sections from the lungs.

Discussion

The above was a typical case of Weil's disease with a fulminating course. The incubation period was five days if the first complaint of pain is taken as denoting the onset, and ten days if the sickness and malaise are considered the first symptoms. Schüffner (1934) found that in cases where the patient fell into infected waters the incubation period varied between four and nineteen days. A case following bathing has been reported (Lendrum, 1936) in which the incubation period was only two days.

Bathing in, or falling into, infected waters is a fairly common mode of infection. Alston and Brown (1937), in a series of 142 cases, found that it was the fourth largest group. Bewley and Wilson (1937) note that the disease occurs in a greater proportion of those who fall into infected waters than of those who bathe in them. This is borne out by the above case, as the canal is used for bathing by very many people during the summer. Schüffner points out that this greater incidence is due to the fact that an unpremeditated immersion often causes violent struggling, so that water enters the respiratory tract. Infection usually occurs through broken skin or through the mucosa of the nose, mouth, or upper respiratory tract. No organisms in the above case were found in sections from the lungs, but they were plentiful in sections from the liver; and infection seems to have been from the swallowed water. It is unusual for infection to occur through the gastro-intestinal tract, as the antiseptic action of the acid in the stomach and the bile is sufficient to destroy the organisms. Carnot and Weil (1934), however, report the case of a woman who, attempting suicide in the Seine at Paris, swallowed a large quantity of contaminated water. She developed spirochaetal jaundice; profound anorexia ensued, and death took place from inanition.

In the clinical course the above case followed the classical description, except that it was a fulminating one. The fatality rate in Weil's disease varies from 5 per cent. to 50 per cent. (Alston and Brown, 1937). The disease may be very mild and jaundice is not always present, diagnosis depending on serological reactions. Many cases may therefore be missed, being of subclinical types. This accounts for the differences in mortality rates.

Summary

A case of Weil's disease is described, and the incubation period, mode of infection, and mortality rates are discussed.

I have to thank Mr. G. C. Wells-Cole, senior surgeon, Lincoln County Hospital, for permission to publish this case.

REUBEN NAFTALIN, L.R.C.P. and S., L.R.F.P.S.

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Reviews

PRACTICAL RADIOTHERAPY

Radiation Therapy. Its Use in the Treatment of Benign and Malignant Conditions. By Ira I. Kaplan, B.Sc., M.D. (Pp. 558; 198 figures, 1 table. 30s. net.) London, New York, Toronto: Oxford University Press. 1937.

The need for a comprehensive and practical book on the therapeutic uses of *x* rays and radium has long been felt, and so it was with very considerable interest that we received a copy of Dr. Ira Kaplan's new book on *Radiation Therapy*. The author is well qualified for the important task he has undertaken, for, in addition to being director of some of the most important radiotherapeutic clinics in New York, he is also editor of the therapeutic section of the *Year Book of Radiology*. In all these capacities Dr. Kaplan has drawn upon his own experience in writing this useful and valuable textbook, and indeed always seems at his happiest when discussing some practical point arising out of his own clinical work. The indications where preference should be given to the use of either *x* rays or radium are clearly set forth, and we think he has done wisely in forgoing the lengthy preliminary sections which are often introduced into books dealing with the uses of *x* rays or radium. In general such accounts are calculated to give a wholly inadequate impression of the importance of experimental radiology as an essential study for all who intend to practise this important and difficult branch of treatment. We are so accustomed to think of radiotherapy as specially concerned with malignant disease that its extensive field of application in non-malignant conditions is apt to be overlooked. In the present work these important uses of radiation are clearly and concisely set forth, and wherever possible the theoretical considerations upon which the treatment is based are explained. Many will perhaps be surprised to learn that *x* rays have been successfully employed for the cure of such lesions as erysipelas and carbuncle. The curative effects are due not to the direct action of the rays on the micro-organisms concerned but probably to their disintegrating action on the leucocytes, whereby bactericidal substances are freely liberated. Many cases of asthma which respond unsatisfactorily to other methods of treatment have similarly been treated with success; and the same holds good of persistent cough in children where the aetiology is obscure. In dermatology many conditions receive benefit from *x*-ray therapy, and the author's experience with intractable and extensive psoriasis will certainly be of interest to all who are faced with its treatment.

"For persistent and resistant lesions we have found treatment over the sympathetic nervous system to be effective in controlling the condition. For this purpose the spinal area is divided into four sections, the cervical, upper and lower dorsal, and lumbo-sacral. The section treated corresponds to the region of the body involved with the disease—that is, if the chest is involved treatment is given to the cervical and upper dorsal spine; when other regions are involved the corresponding spinal section is treated."

Such are a few non-cancerous conditions, chosen on account of their general practical interest; but the list of such diseases in which radiation is successfully used is a long and ever-increasing one. The treatment of malignant disease is, of course, also discussed, but as it has been so often referred to in this *Journal* any more observations on the subject are here unnecessary. There are two further points which call for mention. On page 23 the remarks on the examination of patients by the radiotherapist are calculated to give a wrong impression of his professional duties. Dr. Kaplan writes: "While as a rule the patient referred for irradiation has previously been examined and diagnosed, it is nevertheless advisable for the therapeutist to make an examination himself," and then proceeds to explain the various reasons for which such an examination is required. This might, with limitations, be appropriate to a technical assistant, but is hardly so to a member of the medical profession. The other point is concerned with irradiation of the ovaries and subsequent child-bearing. In spite of the author's fifty cases in which "normal" living children were born, we cannot help feeling that the subject is treated a little too lightly. The subsequent mental as well as physical development of such children and of *their* offspring will be a matter of great interest. At the same time the term "normal" must be interpreted with due reference to the social position of both parents and offspring.

There is every probability that a new edition of this very useful book will soon be called for; if so, it is to be hoped that every page will be carefully examined, as there are a number of typographical errors, which we are unaccustomed to see in works issued by the Oxford University Press. The present volume is printed and published by the American branch of the firm, who in other respects seem to have done all that the most critical author or reader could desire.

BIOLOGY AND THE BODY POLITIC

Bio-politics. An Essay in the Physiology, Pathology, and Politics of the Social and Somatic Organism. By Morley Roberts. (Pp. 240. 15s. net.) London: J. M. Dent and Sons, Ltd. 1938.

Mr. Morley Roberts in his time has played many parts, and each of them with zest—in turn sailor before the mast, rancher, novelist, and biologist. His *Bio-politics*, published on his eightieth birthday, shows that his natural force is not abated. Starting from the axiom that the laws of biology apply to man and his institutions as strictly as to the amoeba, he proceeds to analyse all human activities from that standpoint and to deduce sociological conclusions, particularly for the benefit of the politician. It may be thought that there is nothing new in this method of approach. That remarkable man, Walter Bagehot, did it in his *Physics and Politics* when Darwin's *Origin of Species* was causing evolutionary ideas to permeate all fields of thought. More recently Mr. Wilfred Trotter's brilliant essay on *The Instincts of the Herd* attracted much attention in the same direction, and Sir Arthur Keith has posed the question "Does Man's body resemble a commonwealth?" with his accustomed lucidity. What however was new in Mr. Morley Roberts's *Warfare in the Human Body* (1920) was his insistence on the effect of pathological lesions on the process of evolution, and it was this which made his work of interest to medical men; stress, breakdown, and repair were claimed as stepping-stones to higher things. His sturdy materialism would, however, resent any such teleological gloss as that good thereby came out of evil. Indeed he might point to Sir Frederick Andrewes's fascinating lecture on "The Evolution of the Streptococci" as proof that by the same steps a harmless saprophyte became a dangerous enemy to man. Good for the streptococcus no doubt, but evil for its host! The other *leit-motif* is "hostile symbiosis" as a definition of the conditions obtaining between the different tissues by which a *modus vivendi* is established. Mr. Roberts elaborated the same theses in

Malignancy and Evolution (1926) and *The Serpent's Fang* (1930). He bears willing testimony to the influence of that philosophic pathologist, the late Dr. H. G. Sutton of the London Hospital, on all his thought, but avows himself an impenitent neo-Lamarckian.

This retrospect is not irrelevant, for *Bio-politics* is an attempt to codify the ideas expressed in his earlier books and to extend them to the whole body politic. He visualizes a human community, however, not so much as following the pattern of a complex metazoan type as that of the colonial protozoa. Curiously enough the idea of an evolution of colonial protozoa to the stage of a group-mind was elaborated also in Olaf Stapledon's novel *Last and First Men*, where our earth was invaded by Martians moulded on that pattern.

We hope it will not appear discourteous to a veteran controversialist if we call attention to a few points which seem to us to militate somewhat against the usefulness of his book. If he is out to convince, we would remind him of the old fable of the contest between the sun and the wind to compel the traveller to divest himself of his cloak. In a book professing rigid scientific argument, is not so much sarcasm and scorn out of place? The politician may be invincibly ignorant, but why bludgeon him? Mr. Harold Nicolson has not taken it lying down, but in a spirited rejoinder has given as good as the politician got. Among other things he calls attention to Mr. Roberts's admission that there must be castes in human society corresponding to the higher and lower functions of an organism. Wherein then lies the validity of the analogy with low-grade organisms such as colonial protozoa? No high degree of development or co-ordination is possible without a central nervous system. As an outcome of this wordy encounter we are reminded of Lord Baldwin's dictum that the function of the politician is to tell the expert just what the people will not stand for.

Again, the copious use of analogy has its dangers. Comparative anatomists rightly insist on the difference between analogy and homology. Analogy often provides an illuminating parable, but homology implies a basic organic similarity. We are not sure that all Mr. Roberts's analogies rest upon this firm foundation. Yet again, his conception of hostile symbiosis between every cell leads him to most pessimistic conclusions as to the possibility of peace ever being more than a temporary lull between wars. The face of Europe to-day might well be taken to support this contention. But consider the state of England during the six centuries between the end of the Roman occupation and the Norman Conquest; invasion after invasion by races of different blood and the establishment of a heptarchy. The Devil's Dyke near Cambridge, erected to keep out the Mercians, still stands. But no longer does Mercia desire to invade East Anglia, nor is a Wessex-Mercian axis practical politics. The symbiosis is more evident than the hostility, which has perhaps been "sublimated" into cup-tie contests. Mr. Roberts may retort that pressure from the external environment may promote unity within. Perhaps so, in which case threats from the East may yet produce a Europe so united in defence of its civilization as to be beyond attack.

But we would not withhold our meed of admiration for Mr. Morley Roberts's dogged determination, in the face of ill-health and other obstacles, to place the coping stone by this book on the philosophic system he has constructed. It is a remarkable effort, worthy of much praise, and we can fairly assert that orthodox biological and medical thought owes more to him than is often recognized.

SURGERY

The Science and Practice of Surgery. By W. H. C. Romanis, M.B., M.Ch., F.R.C.S., and Philip H. Mitchiner, M.D., M.S., F.R.C.S. Vol. i, General Surgery; vol. ii, Regional Surgery. Sixth edition. (Pp. 883 and 1053; 800 illustrations. 14s. each volume.) London: J. and A. Churchill Ltd. 1937.

A sixth edition of *The Science and Practice of Surgery*, by Romanis and Mitchiner, testifies to its continued popularity during the ten years which have elapsed since its first appearance. This is deserved, for it remains one of the best textbooks for the student, concisely and clearly written, well illustrated, and descriptive of current surgical practice. The latest edition contains a new section on the medical aspects of exposure to poison gas, and the chapters on fractures and dislocations have been largely rewritten so as to bring them into line with more modern views of treatment. Other sections of the book in which there has been extensive revision are those on anaesthesia and the sympathetic system. In the preface to this edition the authors remind us that the book is intended primarily for students who are required to meet the syllabuses of examining bodies, and that several methods of diagnosis and treatment are therefore discussed in dealing with each pathological condition rather than an arbitrary laying down of personal practice in these cases. Quickenstedt, pages 8 and 137, vol. ii, should be Queckenstedt.

Like good wine, this work apparently improves with age. This is the best edition that we have seen, and should be much in demand by the students for whom it is written.

DRUG BOOK FOR QUICK REFERENCE

Index Médico-Pharmaceutique. Edited by N. T. Deleanu, René Fabre, and L. Coniver. Preface by M. Maxime Radais. (Pp. 756, 488 pages of which are tables. 120 fr.; 150 fr. bound.) Paris: Masson et Cie. 1937.

This medico-pharmaceutical index, edited by Professors Deleanu and Fabre of the Faculty of Pharmacy of Paris and M. Coniver of the University of Bucharest, is based on the *Codex Medico-Farmaceutic*, which was prepared and published in Rumania in 1927. It is intended to serve as an extra-pharmacopoeia which will give French-speaking doctors a book of rapid reference for problems relating to the composition, chemistry, and action of drugs. Articles on special subjects have been contributed by a number of different authors. For example, Professor Tiffeneau writes on the general principles of drug action and on chemotherapy. Other articles deal with poisoning, hormones, vitamins, prophylaxis of infectious diseases, etc. About two-thirds of the volume is occupied by an alphabetical index of drugs. This gives in tabular form their chemical, physical, and therapeutic properties, dosage, toxic actions, antidotes, and incompatibilities. The index contains about 1,200 titles, and in addition to the official drugs (that is, those contained in the French Pharmacopoeia) a large number of proprietary drugs are described.

From what is said above it will be seen that the arrangement of the volume differs in many ways from comparable British publications such as the *Pharmaceutical Codex* or the *Extra Pharmacopoeia*. In these latter all information relative to a drug is gathered under a single title, while in the book under review only a brief tabular account is given of the therapeutic properties of drugs, and about one-third of the text is devoted to general reviews of special subjects. The volume will be found particularly useful by practitioners in this country who wish to look up the chemical and pharmaceutical properties of drugs used in France.

SKELETAL MATURATION

Atlas of Skeletal Maturation. By T. Wingate Todd, M.B., Ch.B., F.R.C.S. (Pp. 202; 4 tables, 75 plates. 31s. 6d. net.) London: Henry Kimpton. 1937.

Some standard yard-stick for the measurement of the normality or delay of physical growth is badly needed by those concerned in the care of children, and Professor T. Wingate Todd's *Atlas of Skeletal Maturation* will be welcomed for offering a possible solution to this problem. This volume appears to be one of a series, for after over thirty pages of introduction the reader is led to a section headed "Part I—Hand" with twenty pages of text and over eighty illustrated by *x*-ray pictures of the hands of children, male and female, at different ages from three months to over eighteen years, each with appropriate comments according to a special plan. Probably something like a million skiagrams have been examined by the author and a large team of associates, and this gigantic task has yielded an atlas of standards of first-rate scientific importance. Three preliminary surveys have been discarded, and the final selection here presented offers few grounds for criticism. For the accurate treatment of retarded children the first essential is a precise and reliable method of measuring the stage of maturity. This is now afforded by Professor Wingate Todd's work, upon which he and his collaborators are to be sincerely congratulated.

Notes on Books

Students attending the short course in bacteriology which forms part of the ordinary medical curriculum often prefer to use a textbook containing only essentials and simplifying the subject as far as it reasonably can be. Among such books Dr. L. E. H. WHITBY'S *Medical Bacteriology*, which has now appeared in its third edition (J. and A. Churchill, 11s. 6d.), has become a popular choice. Concise writing, together with a profusion of well-drawn if perhaps rather over-diagrammatic illustrations, makes it attractive and readable, and in some respects the information given is remarkably full for a work of such modest size. This edition contains a new chapter on theories of immunity, a rather surprising revival of an aspect of the subject which has lost favour in most elementary teaching of recent years. The chapters on protozoa and animal parasites are a valuable feature, and the extensive concluding section on applied bacteriology will doubtless be of value, more perhaps to the practitioner than to the student, but its advocacy of vaccine treatment for such conditions as arthritis, colitis, and "intestinal toxaemia" must be regarded as a departure from the strictly scientific outlook of the earlier pages.

Crossens' *Operative Gynaecology*, first published in America in 1915, has long been well known in this country. It is a book which has proved useful to many gynaecologists and to surgeons embarking upon pelvic work. A fifth edition, entirely revised and reset, has now been prepared by Professor H. S. CROSSEN and Dr. R. J. CROSSEN after an interval of seven years. New knowledge, physiological, anatomical, and therapeutic, has been thoroughly sifted by the authors, and in the course of rearrangement and rewriting they have held to the principle that underlay previous editions: "The selection of the operative measure most suitable for the particular modifying conditions present in that patient, instead of trying to apply one operation to all classes of lesion regardless of type and details." The illustrations, as before, are very numerous, and many new drawings have been included. This handsome volume of 1,076 pages is published by Henry Kimpton at 52s. 6d. net.

Nuevos Estudios sobre los Neumotorax Espontaneos consists of a series of beautifully illustrated papers on spontaneous pneumothorax by MARIANO R. CASTEX and EDIGIO S. MAZZEI. Most of the papers were originally read before the National Academy of Medicine in Buenos Aires. The first article deals with the anatomy, radiography, and pleuroscopy of subpleural bullae; the second with benign spontaneous pneumothorax caused by their rupture; and in the third is described the recurrent form of pneumothorax. In another article the relation of spontaneous pneumothorax to asthma and emphysema is discussed, and in yet another the uncommon painful forms of spontaneous pneumo- and haemothorax. In the last chapter the authors discuss fully the causation and treatment of spontaneous pneumothorax (and its complications) in the course of pulmonary tuberculosis. The bibliography at the end of each section of this book will be found a valuable feature. It is published at Buenos Aires by Aniceto Lopez.

The price of *The Silent Social Revolution*, by G. A. N. Lowndes (Oxford University Press), reviewed in the *Journal* of March 5 (p. 515), is 6s. net—not 2s.

Preparations and Appliances

RUBIAZOL

Rubiazol (Roussel Laboratories Ltd., 36, Cavendish Square, W.) is an interesting new derivative of sulphamido-chrysoidine (prontosil), which was discovered in 1936 by Girard. Its chemical name is carboxy-sulphamido-chrysoidine. Gley and Girard (1936) found that rubiazol was less toxic than prontosil and had a higher anti-streptococcal activity. Clinical trials in one of the largest maternity hospitals in Paris (3,598 cases) showed that the total number of days of hospitalization for cases of severe puerperal sepsis fell from 1,297 in 1934 to 162 in 1936.

The original prontosil was introduced in 1935, and the whole subject is too recent to permit judgment on the relative merits of the numerous compounds which have been introduced. Fortunately the difficulty in making such a decision is due to the fact that excellent results have been obtained with several rival compounds. The claims made for rubiazol are high, and it will be interesting to see whether it proves to have a clear superiority over sulphonamide.

LAMPS FOR ULTRA-VIOLET TREATMENT

A copy of the catalogue (No. 120) of Lumsden quartz lamps has been received. The outstanding introduction is the Lumsden "medical sun lamp," which is designed for general ultra-violet treatment by medical practitioners in private practice or in hospitals. The quartz mercury vapour lamp is of a new gas-filled discharge type, rich in its output of radiation, and requiring no tilting to start the arc. The reflector is made to move in all directions so that it can be rotated to a convenient angle and used either vertically or horizontally for sitting or recumbent patients. Doors are provided to focus or confine the light. The control unit containing the choke coil and resistances has a drawer to hold goggles and accessories. A word should be said about the attractive appearance of the unit. The body is finished in black and silver, and the reflector is matt silver outside and chromium-plated inside. Another device is the Lumsden "central sun lamp" for use in clinics where there are a large number of patients who are able to move about, doing exercises or even playing games during treatment. It consists of a central pillar with a triangular reflector around which are grouped three quartz burners so arranged that no matter where they stand patients up to twenty or more may be always under the rays of two burners but never of more. It is claimed for this equipment that it represents the most economical method attainable of irradiating a large number of patients with mercury vapour lamps.

MEDICAL RESEARCH COUNCIL

REPORT FOR 1936-7

If a reviewer ever trembles he might well be excused for doing so when confronted with the annual report of the Medical Research Council, the body which by its allocation of Government funds and funds from private sources ordains to a large extent the direction of medical research in this country.[1] The report comprises 196 pages, and it covers the range of medicine. Fortunately for the reviewer, however, this document is in the main an epitome of what has already appeared during the year in certain journals or special publications or has been discussed in medical societies, so that one is conscious of travelling over familiar territory. Over a hundred such contributions appeared during the year from workers at the Council's own central laboratories, the National Institute for Medical Research at Hampstead, and many others from external workers receiving in one form or another grants-in-aid; but set out in the succinct form of the present report the impression is given of an army of research pursuing its objective through many highly specialized units.

Many-sided Investigations

Over twenty investigation committees for special subjects have been set up by the Council, the subjects including clinical science, therapeutic trials of new remedies, anaesthetics, nutrition, dental diseases, mental disorders, tuberculosis, vision and hearing, hormones, bacteriology, school epidemics, chemotherapy, and statistics. The Industrial Health Research Board, which assists the Council, has set up half a dozen more, including committees for industrial pulmonary diseases and industrial psychology. The National Institute has a staff of over forty professional workers. The Council, by the way, has decided in principle—the scheme awaits a final decision on the ground of cost—to abandon the Hampstead site of the Institute and to concentrate the whole of the work at Mill Hill, where, fifteen years ago, it purchased a considerable property.

But the Council does not put all its golden eggs in the National Institute basket. It supports clinical research units at three London hospitals—University College, Guy's, and Queen Square. It also makes grants in aid of research work in different institutions throughout the country. Another development is one under which appointments are made to the Council's staff for work in external institutions. In this way every department of medicine is covered, and most notably clinical medicine. Arrangements have also been made by the Council, in consultation with the Colonial Office, for the promotion of a more extensive programme of research in the field of tropical medicine; this is now in its second year, and work is being done on a number of specified subjects, including trypanosomiasis, yaws, yellow fever, and pellagra. One pleasing circumstance is the resumption and augmentation of the Rockefeller fellowships. The award of these was suspended a couple of years ago, the Rockefeller Foundation deciding to concentrate on certain special fields of research activity, but this year once again seven Rockefeller Fellows have been appointed by the Council and are all at present working at centres in the United States. In the special field of tuberculosis the Council has itself awarded a further series of four research fellowships, and the holders are at present studying problems of tuberculosis abroad.

[1] Report of the Medical Research Council for the Year 1936-7. Cmd. 5671. H.M. Stationery Office. (3s.)

Research in Chemotherapy

Chemotherapy, the administration of chemical compounds synthesized in the laboratory and found to have a specific action on the infected organisms causing particular diseases, is this year on the first page of the programme. Following the submission of proposals by the Council, the Government has approved an additional sum of £30,000 a year with a special view to the development of research in this subject. The decision has been made not entirely on medical grounds but on the grounds of industrial opportunity and of national and colonial requirements. The investigation so far has scarcely begun, the first allocations being devoted to building and equipment.

Up to now the principal successes of chemotherapy have been in infections with spirochaetes and protozoa rather than with bacteria, but there is good reason for regarding the value of chemotherapy as likely to be established in infections of a bacterial nature also. The recent achievements in the treatment of streptococcal and other infections by the substance known as "red prontosil" and the colourless substance of simpler constitution usually called sulphanilamide are pointed to as an encouraging indication, and a new field in chemotherapy has been opened up which is being effectively and rapidly developed.

Apart from such new directions, the chief role of chemotherapy has been in tropical diseases, and therefore the subject has a special significance for the British Empire. But the discovery and production of chemical compounds of value in this respect have depended, and still depend, almost entirely on German science and industry. The most notable exception to this—namely, tryparsamide—is of American origin. Several fundamental discoveries in chemotherapy have been made in this country; it was here, for example, that the trypanocidal action of atoxyl was first demonstrated, and here also that the similar action of tartar emetic was discovered and its value in bilharziasis established. The original discoveries have been made here, but the intensive researches for compounds superior to the original substance have been carried on abroad, and therefore the production has passed into foreign monopolies. The matter is more serious than one merely of prestige, for in the event of war the British Empire might find itself deprived of essential drugs. Obviously this is a matter which calls for a national scheme supported by public funds. Large research facilities are necessary to secure substantial advances in chemotherapy. The proposals include the setting up of a central research laboratory with a staff able to give their whole time to some most laborious investigation, and also the assignment of certain parts of the work to different academic centres.

The scheme will follow the general line of action of a great commercial organization like some of those in Germany, but with the extremely important difference that it will not aim solely at financial success. A commercial undertaking, again, would be likely to neglect the large amount of information of scientific but not of immediately commercial value incidentally obtained.

Sulphanilamide and Allied Substances

The work at Queen Charlotte's Hospital on the treatment of puerperal sepsis with prontosil is already familiar. It is touched upon again in the present report. The work has since branched out to other streptococcal infections

unconnected with childbirth, the most spectacular being streptococcal meningitis. The sulphanilamide compounds have been shown to have curative effects in infections by typhoid and other coliform bacteria, and, somewhat less impressively, in infections by pneumococci and staphylococci. From the standpoint of public health perhaps the greatest importance attaches to reports of curative effects of sulphanilamide compounds in acute and chronic gonorrhoea in both sexes. Some of these reports, however, are unfavourable, and it is thought well to suspend judgment for the present as to the complete efficacy of the treatment, though the reports may have arisen only owing to wrong dosage and administration. The indiscriminate sale of a preparation of this kind in America has had most unfortunate results, simply owing to the fact that another and quite unsuitable component had been added to the sulphanilamide itself. But it is necessary to warn the public that a powerful remedy must be used with discrimination and always under medical advice.

Among the various pieces of work narrated are some experimental studies of these compounds at Glasgow University, where the powerful curative effects of the drugs in mice infected with different strains of haemolytic streptococci, provided that the treatment is begun soon after infection, have been confirmed. No striking prophylactic effect against the streptococci was, however, demonstrable, and it has occasionally happened that mice, apparently cured of the infection, have developed fatal relapses after treatment has ceased.

The reason why progress has been so rapid in this field during the last year or so is easily explained. It is because, unlike the earlier attack upon protozoal parasites, this latest work has been concerned with organisms which can be easily seen and cultivated and which lend themselves to experimental investigation.

Immunology and Biological Standards

Some work at the National Institute carried out mainly during the year under review has opened up what may prove to be an important chapter in immunology. The production of passive immunity by injection of an antibody prepared in an animal of a different species has been familiar since the introduction of antitoxins for the treatment of diphtheria and the prevention of tetanus, but this interspecific type of immunity was of short duration. In some recent investigations on the nature of the substances neutralizing certain hormones a new type of interspecific has made its appearance. This substance appears in the blood serum of animals subjected to long-continued courses of injections of these hormones, and the evidence so far obtained suggests that it is of true antibody type.

Arising out of this work it has been found that diphtheria antitoxins from the horse, the goat, and the ox fail to cause any perceptible sensitiveness of the guinea-pig or its plain muscle to diphtheria toxoid, but that the antitoxin from a rabbit, and still more readily that prepared in a guinea-pig, render the guinea-pig and its isolated plain muscle highly anaphylactic to the diphtheria toxoid. It is found, further, that serum from a man who has been successfully immunized belongs to the group of the rabbit and the guinea-pig rather than to that of the ungulates in that it readily makes the guinea-pig anaphylactic to the diphtheria toxoid. By a suitable adjustment of conditions guinea-pigs can be made actively, as well as passively, anaphylactic to the diphtheria antigen. It is thought that this new factor in the relation between an organism and an antibody artificially introduced into it, depending on the species yielding the antibody, may prove to have important bearings on immunological therapeutics.

A reference is made to the new insulins. It is pointed out that these preparations have presented fresh problems of control under the Therapeutic Substances Act. The zinc-protamine-insulin has been the subject of a good deal of work by British manufacturers, controlled by suitable tests imposed under that Act. Experiments are still in progress, and information is being exchanged between the National Institute for Medical Research in this country and the Toronto Insulin Committee with the object of further improving the tests which control the activity of this important preparation of insulin.

The Virus of Influenza

In the report of the Council last year certain investigations were described which had led to the preparation of a vaccine from the lungs of mice infected with the influenza virus. This vaccine consisted of a filtrate from the infective material, inactivated by treatment with formaldehyde. The widespread epidemic of influenza in the winter of 1936–7 gave an opportunity for observations and trials of the virus, and the high percentage of positive results has strongly reinforced the identification of the virus as the primary cause of the infection, especially when contrasted with the uniform failure to obtain the virus from non-influenzal cases of respiratory infection. From a detailed clinical study of influenza as seen in 120 patients—chiefly in Service hospitals—it is tentatively concluded that the disease caused in man by infection with the influenza virus probably constitutes a recognizable clinical entity, differing in symptoms as well as in its epidemiological character from other catarrhal infections of the respiratory tract which have often been confused with it.

The misuse of the term "influenza" as a label for various catarrhal conditions is therefore all the more to be deprecated. The misuse arose inevitably at a time when the causative organism of influenza was unknown, and probably it continues by reason of a preference on the part of patients to describe their ailment as influenza, which is considered an adequate reason for invalidism, whereas "catarrh" is not.

The results of vaccination against influenza have so far been inconclusive. Vaccination with the inactivated virus does not give protection in all cases, even when the conditions are favourable. All that can be said at present is that if vaccination is to have a good chance of success in any future epidemic it will be necessary to choose an inoculum made from a virus belonging to the same immunological group as that responsible for the immediate outbreak.

A note is appended to the report on a method of egg-membrane culture in the study of viruses, including that of influenza. It has been found that a number of viruses can be propagated in the developing egg of the domestic fowl, and such eggs can now be used with advantage to replace experimental animals. This laboratory method is likely to prove its utility in the study of diseases due to infection with filter-passing viruses.

(To be concluded)

A new hospital at Cape Town has been opened by the Governor-General, Sir Patrick Duncan. This building consists of five floors, and there are 850 beds, of which seventy-seven are for paying patients. According to Reuter, it is the best-equipped hospital in the Union of South Africa, and has cost approximately £1,000,000.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY MARCH 19 1938

MEDICAL RESEARCH IN BRITAIN

The Medical Research Council owed its origin to the "research penny" which, under a provision of the first National Insurance Act, Parliament undertook annually to provide. After five years' experience of its working the enlarged scope already granted to the Medical Research Committee (to give it its first name) was confirmed by a charter of incorporation. The Council received its present status under the direction of a Ministerial Committee of the Privy Council; hence the annual reports are formally presented "To the Lords of the Committee of the Privy Council for Medical Research." Looking back over the early years we may recall how much development was affected by the war, which broke out shortly after the work began. The success that attended the application of the principles and methods of scientific medicine to the medical war problems of 1914–19 had a great effect at that time. Appreciation of the importance of science to industry had been growing steadily, though very slowly, in Great Britain before 1914, and it was hoped that lessons taught to the public during the war would not be forgotten when the emergency organization for medical research was dissolved. At the breaking up of that organization many men marked by distinguished scientific achievement in the war were in danger of returning either to non-scientific duties or to teaching posts so poorly paid that they would have to augment their stipends by doing professional work of a kind incompatible with serious effort in research. Both public subvention and private munificence came to the rescue. The House of Commons made further financial provision for the universities (now administered through the University Grants Committee); it increased the annual vote for the Medical Research Council, and voted other money for scientific, industrial, and agricultural inquiries. The action of Parliament and the growth of public opinion stimulated benefactors to give or leave money to supply the needs of scientific research, and notably those of medical research, and this change of attitude made the lay authorities of many hospitals newly alive to their responsibilities for aiding the advancement of knowledge.

The Medical Research Council, whose report for the year 1936–7 appears this week (see p. 625), has acted throughout in co-operation with the universities and the medical schools attached to universities. The work done directly for the Council, or with its aid, includes that of the M.R.C. staff, whether in its own laboratories at the National Institute for Medical Research, in the clinical units it has established in various hospitals, or elsewhere. The record for the year also includes numerous researches, which are helped by grants from the Council, in the universities, hospitals, and other institutions in various parts of the country. Brief reference was made last year to the Government's intention to provide an additional sum of £30,000 per annum for the work of the Medical Research Council, with a special view to fostering progress in chemotherapy. This decision followed proposals framed by the Council in consultation with the Department of Scientific and Industrial Research, not only from the point of view of medical science but also with regard to industrial opportunity and national and colonial requirements. Chemotherapy, by definition, consists in the giving of chemical agents synthesized in the laboratory and found to have specific inhibitory actions on infective organisms causing particular diseases in man and animals. In a closely allied but much wider field of therapeutics advance depends on the same kind of investigation made by chemists and biologists working in collaboration. This wider field of research includes the discovery of chemical substances produced in the laboratory which have specific actions on certain bodily functions and which are thus of great value in the systematic treatment of disease as well as in other aspects of medical practice.

In so far as the chief role of chemotherapy has until recent months been in diseases of man and animals in tropical countries the subject is of peculiar importance to the British Empire. Yet the discovery and production of chemical compounds of value in this way has depended almost wholly on German science and industry, and still so depends. The outstanding exception (trypars-amide, for sleeping sickness) is of American origin; and the best example of a natural product for like purposes (quinine, for malaria) is practically a Dutch monopoly. Thus the needs of the British Empire for these drugs have to be met almost entirely from foreign sources. This is all the more remarkable and regrettable because several basic discoveries, opening up new fields in chemotherapy, have been made by British chemists and physiologists. From every point of view there is need for further research in Great Britain aimed at the discovery of new chemical substances of therapeutic

value, and strong reason for developing a national scheme of investigation. An outline of research work on chemotherapy proceeding in this country under the auspices of the Council is given in the present report, with proposals for further development, more especially in the highly important direction of the treatment of streptococcal and certain other bacterial infections with sulphanilamide and allied substances.[1]

Other matters discussed at some length in the general introduction are influenza, surgery of the heart, the causes of mental defect, the role of common salt in the body, and the part played by nicotinic acid in biological phenomena with special reference to its action as a vitamin of the B complex. As in former years, the work of the National Institute for Medical Research, under the direction of Sir Henry Dale, is set out in some detail. The need for additional laboratories for the new work on chemotherapy is one of several factors which have raised in acute form the question of future policy regarding the site and buildings of the National Institute. After long consideration of the problem in all its bearings the Council has decided in principle to abandon the Mount Vernon site at Hampstead and to concentrate the whole of the National Institute at Mill Hill. The main advantage of this will be the close contact and means for collaboration between different departments and the convenience of common services, with greater ease of control and economy in maintenance. Proximity to the new laboratories of the Imperial Cancer Research Fund at Mill Hill on land leased by the Council will bring mutual benefit.

The success of the policy followed from its early beginnings by the Medical Research Council is not often questioned to-day, and few would now deny the debt owed by British medicine to the zeal and foresight and good judgment of Sir Walter Fletcher, who left his physiological work in Cambridge to accept the arduous duties of secretary of the new body. The tradition set by Fletcher has been continued since his death by Sir Edward Mellanby. Both secretaries have been fortunate in their chairmen and in their office colleague, Dr. Landsborough Thomson.

[1] See *British Medical Journal*, March 5, 1938. "The Mechanism of the New Chemotherapy."

INTERNSHIP AND MEDICAL EDUCATION

One of the most important suggestions made by the British Medical Association's Committee on Medical Education in its report of July, 1934, was that each student should be given, within the period of the curriculum, not less than six months' responsible clinical experience under supervision, together with instruction in certain aspects of medical practice. The conditions under which, and the methods by which, such experience, supervision, and instruction should be secured were laid down with some particularity. It was recognized, however, that there would be much difficulty in giving immediate practical effect to these proposals; and eventually, while reiterating the conviction of their great value, the Association was content to express the hope and belief that further consideration will lead to their adoption when the curriculum is next under revision by the General Medical Council, presumably some years hence. That those concerned with medical education in Canada (and incidentally in the United States of America too) are now coming to similar conclusions is evidenced by a report on "Intern Education and Supervision," prepared by a joint committee of the Ontario Medical Association and the Canadian Medical Association.[1] This report is a really important study of its subject, and though it deals with the matter mainly from the aspect of hospital service—the duty of the intern to the hospital and of the hospital to the intern—it includes the consideration of such questions as undergraduate internship, resident posts in specialties, the legal status of interns and of students in a like position prior to licence to practise, the alternative plan of a period of practice in conjunction with a senior private practitioner, and the issue of a temporary interim certificate to practise in these and similar circumstances. Some of these points require further study and elaboration, but it is noteworthy that they have been brought definitely into the field of serious discussion and that there is an apparently widespread feeling that they embody a policy or a cause which is in itself desirable, and the difficulties of which, though evident, should be faced and overcome.

The position on the other side of the Atlantic is not identical with that in Great Britain and Ireland. In Canada it appears that the number of openings for internship is much in excess of the number of students available to fill them, whereas on this side it would require some organization and much co-operation between various types of hospital to provide a large enough number of resident posts. Again, Canada complains of a laxity in observing contractual obligations in this sphere which is rarely, if ever, seen in this country. It is astonishing to read that among certain interns—though the offenders constitute only a minority—"long alternate week-ends are being demanded without consideration of the needs of the patients; strikes have occurred for higher pay; assigned duties have not

[1] *Intern Education and Supervision.* Department of Hospital Service, Canadian Medical Association, 184, College Street, Toronto, 2.

been performed; interns have absented themselves from duty without permission and even against orders. It is an all too common occurrence for interns to pack up and leave whenever a likely opening in practice presents itself." Further, the conditions of licensure in the Dominion and in its several Provinces differ from those in Great Britain. Whereas here the possession of a recognized diploma or degree of itself entitles the entry of a name on the *Medical Register*, in Canada further examinational tests and requirements have to be fulfilled before the licence to practise is granted. Such differences may increase or lessen the difficulties to be overcome if either undergraduate or immediate postgraduate internship (or some corresponding alternative) is to be made a condition of entry upon independent practice; but they do not in any degree detract from the mutual obligations of the intern and those under whose supervision and responsibility he acts.

The statement and clarification of these obligations are the main concern of this joint report. The purpose of internship is described succinctly and admirably, and under no fewer than twenty-six headings there are set out what should be the conditions and procedure of intern education. The main desiderata are a definite programme of instruction; adequate facilities for work and discussion of cases; increasing familiarity with nursing procedures, the administrative problems of hospitals, the social aspects of medical care, and the requirements of medical ethics; responsibility in the out-patient department, and experience in dealing with patients in "private" wards; health supervision and recreative activities; and, as absolutely vital, a real interest in the welfare and education of interns on the part of the medical staff, both individually and collectively. Most of the points are developed in some detail, and it is much to be hoped that this valuable report may be made the basis of discussions, leading to practical improvements in medical education, both in the immediate and in the more remote future.

SERUM TREATMENT IN GONORRHOEA

We published last year an account[1] by T. Anwyl Davies of the results of treating gonorrhoea with "gonococcus antitoxin." This account was exceedingly favourable; the serum had a clearly specific effect, the duration of the disease being lowered while complications were reduced in frequency or responded remarkably to the treatment. In subsequent correspondence the significance of these observations was questioned, mainly on the grounds that they were uncontrolled by comparison with other cases not treated with serum, and that the possible effect of other measures had not been taken into account. In spite of these elements of doubt the enthusiastic nature of this report induced E. T. Burke, J. Gabe, A. H. Harkness, and A. J. King to adopt the treatment in three venereal clinics, and a combined account of their experiences appears in our opening pages to-day. This account is wholly unfavourable; the serum had no specific anti-gonococcal effect; recovery, so far from being accelerated, was interfered with, and serious reactions were frequently produced. There can rarely have been a flatter contradiction between the results of two series of observations on similar patients and with the same remedy. Careful analysis of the records on both sides would doubtless reveal minor differences in procedure, but it seems altogether unlikely that unrecorded variations of this kind could explain so glaring a discrepancy. Therapeutic trial must always be the final court of appeal in assessing the merits of any remedy, but let us admit that its judgments are fallible. There are other grounds upon which the claims of "gonococcus antitoxin" to be a specific remedy may be judged, and to these we referred in editorial comment[2] on Dr. Anwyl Davies's paper. The supposition involved in the mode of preparation of this serum, that the gonococcus produces an exotoxin, is disputed, and the methods available for testing such a serum have unfortunately little claim to significance as an index of therapeutic value. There was therefore no strong *prima facie* case in favour of this serum, and a favourable verdict on it had to rest on those reported results of clinical trial which now meet so emphatic a denial. It was pointed out in the correspondence of last year that further research in methods of serum preparation was needed, and although this remains generally true, it may be doubted whether any such efforts are now likely to take gonorrhoea as one of their earlier objectives, or indeed perhaps meningococcal meningitis, which is also involved in the same difficulty. During the past year the new chemotherapy has widened its scope to include both these diseases, and in both it seems capable of achieving at least as much as serum ever has; in gonorrhoea certainly more, according to many recent reports.

[1] *British Medical Journal*, 1937, **1**, 321.

ENCEPHALITOZOIC ENCEPHALOMYELITIS

Little is known of intra-uterine infections apart from syphilis, and so fresh ground is broken by A. Wolf and D. Cowen[3] in their recent description of an undoubted example of an encephalomyelitis of this kind due to an organism resembling the *Encephalitozoon cuniculi*—a parasite causing spontaneous encephalitis in rabbits and mice. In retrospect the authors surmise that two similar cases have already been reported in the literature, but these are insufficiently documented to establish this point. The case now reported was in an infant which came under medical observation at the age of 24 days suffering from convulsions. It was born of parents who had spent their lives in or near New York City and were apparently healthy. During the first five

[2] *British Medical Journal*, 1937, **1**, 335.
[3] *Bull. neurol. Inst. N.Y.*, 1937, **6**, 306.

months of the pregnancy they had lived in an apartment which was heavily infested with mice; there had been no contact with rabbits. Two days after birth the infant began to have convulsions, followed by diarrhoea and vomiting. It was acutely ill when admitted to hospital, with bulging fontanelle and slight head retraction. Xanthochromic fluid containing an excess of mononuclear cells and protein was withdrawn by lumbar and ventricular puncture. No growth was obtained on aerobic and anaerobic culture of these fluids. Both retinae showed patches of yellowish-white inflammatory exudate. The infant died after five days in hospital. The necropsy, which was performed three hours later, revealed nothing of outstanding interest, apart from the central nervous system. This showed, to the naked eye, focal exudative meningitis with patchy areas of discoloration and necrosis in the underlying brain. The ventricles were dilated and their ependymal lining was replaced by stringy exudate and raised islands of yellowish tissue. The basal ganglia were friable and showed patches of yellowish discoloration. Microscopically the whole central nervous system was unequally affected by a meningo-encephalitis, which proceeded in places to necrosis and caseation and, in less severely inflamed areas, to the formation of discrete miliary granulomas. The latter were most frequently found in the white matter, the tissue in the neighbourhood of the lateral ventricles being severely affected. The spinal cord and the brain-stem were less involved than the cerebral hemispheres. Especially noteworthy are the changes described in the optic nerves and retinae, where similar granulomatous lesions were present. A careful examination of the fundi is therefore indicated in the investigation of any future patients who may be thought to fall within this class of case. The organisms found in the lesions are fully and carefully described and are illustrated by photomicrographs and a colour plate. They closely resemble the *Encephalitozoon cuniculi*, and, as the authors point out, the lesions which this organism can produce in the rabbit and mouse are of a similar histological character. Its life cycle is unknown, and hence the means whereby human beings may become infected is at present obscure.

PHYSICIANS OF THE MAYO CLINIC

A distinguished editor once said that whenever he had nightmare his dream always took the form that Mr. Gladstone had died suddenly just after the paper had gone to press and that the stock obituary had been inadvertently destroyed. *Physicians and Surgeons of the Mayo Clinic and Mayo Foundation*[1] will save future editors from a similar nightmare as regards the alumni of that great school, and they alone will be able to appreciate its full value. The book consists of short biographies arranged alphabetically, each with a portrait and a hand-list—improperly called a bibliography—of the alumni of Rochester. The major part of the work is devoted to those who have been officially connected with the Clinic or Foundation for a year or more. A second and smaller section tells of those who have served for a shorter time. There are appendices giving the universities at which the alumni were educated and the countries and States where they were born. The record fills 1,571 octavo pages and shows the world-wide influence which the Rochester school has exercised upon the progress of surgery. The book is issued in the U.S.A. by the University of Minnesota Press and in Great Britain by the Oxford University Press. The editorial duties have fallen upon Dr. and Mrs. R. M. Hewitt, who have carried out the work with the able help of members of the Division of Publications of the Mayo Clinic.

[1] London: Humphrey Milford, Oxford University Press. (45s. net.)

PROBLEMS OF VITAMIN B DEFICIENCY

Although gross lack of vitamin B is met with rarely in this country and in the U.S.A., moderate deficiency is perhaps not uncommon. A suboptimal intake of vitamin B is said to lead to such ill-defined functional disorders as anorexia, inefficient utilization of food, and a lowered haemoglobin content. Many of the investigations have been conducted on children living in institutions or presumably under-nourished before the special additions of vitamin B have been made. M. W. Poole and his co-workers have now published[1] an important study on the effect of adding vitamin B to the usual diet of healthy infants. Great care was taken to secure, so far as possible, comparable groups of "average well" babies, of whom two-thirds were white and one-third negro. The children were attending a special clinic for observation, but otherwise they were left in their own homes and cared for by their own parents. A special evaporated milk was used throughout the experiment, and apparently contained about 227 Sherman-Chase units of vitamin B in the average daily quantity of milk taken. One group of babies was taken as a control, and another group, numbering seventy-four, received a diet to which specially prepared extracts of rice polishings were added, giving the average daily content of 320 Sherman-Chase units of vitamin B. In all other respects the diets were kept as nearly identical as possible, and the amounts of cod-liver oil and vitamin C added were carefully watched. The main result of the experiment was negative. The babies in the control group gained in weight and in length approximately as well as those receiving extra vitamin B, but there was a definite smoothing of the weight curves, and the average gain was more regular and consistent, among those receiving extra vitamin B. From the detailed observations made it seems clear that the supplement of vitamin B had a mild laxative effect, for twice as many cases of mild diarrhoea were observed among the infants receiving the increased amount; on the other hand, constipation, which was uncommon, occurred with equal frequency in the two groups. There was no difference in dentition in the two groups, and in the matter of resistance to infection it was observed that when all grades of severity of nasopharyngitis were added to bronchitis and pneumonia the number of "infections per infant" was slightly higher in the group

[1] *Amer. J. Dis. Child.*, 1937, **54**, 726.

receiving additional vitamin B. The percentage of babies showing anorexia was about the same in both groups. Thus with the exception of the promotion of a more stabilized growth and what is termed "greater nutritional stability" there was no obvious advantage in adding vitamin B to the diet of healthy, well-managed infants. Certain psychometric observations were also undertaken.[2] The general picture of the infants receiving increased amounts of vitamin B is summarized as "one of slightly accelerated maturation in basic behaviour patterns (except the sympathetic), augmented alertness in attention and perception phenomena, and slightly accelerated adaptive behaviour patterns (learning)." On the other hand there were many individual variations, and, in fact, with certain types of co-ordination there was an actual lack among the babies receiving extra vitamin B at the age of 1 year. Much time and energy have obviously been expended on these investigations, and if the more or less negative results obtained are accepted as final it would appear that no supplements of vitamin B to children's diets are really necessary.

THE HOSPITALS OF CORNWALL

It is probable that the report of the Voluntary Hospitals Commission issued last year carried conviction that some scheme for the grouping of hospitals in areas or regions was highly desirable or even necessary. To translate conviction into action may be much more difficult. It is therefore a good thing that a further committee should have been set up with a view to implementing the recommendations of that report, and that some survey of county areas in England and Wales should have been taken in hand. One such survey of the hospitals in Cornwall has just been issued. It was made by Dr. Eric Donaldson, representing the Ministry of Health, and Mr. R. H. P. Orde, the honorary secretary of the British Hospitals Association, in response to a resolution passed last August at a meeting of representatives of the voluntary hospitals of the county at Truro inviting such a joint survey. In due course a meeting of the hospital representatives is to be called to consider this joint report. Conditions in Cornwall are in some respects unique among those of the English counties. Truro is the capital town and is fairly centrally situated, but there are three or four other towns in the county of approximately the same size, and none of them is large. In both Truro and Redruth there are at present hospitals the enlargement of which is in progress or in contemplation, and these towns are within eleven miles of each other. The other hospitals of the county are small, but the total accommodation seems to be sufficient, and the Penzance hospital is the only one which shows some signs of overcrowding. There are four small hospitals in East Cornwall whose natural outlook is towards Plymouth rather than towards Truro—Stratton, Liskeard, Saltash, and Launceston—so that in this case, as probably in most other counties, the actual county area does not constitute the most convenient hospital region. The joint report suggests that these four hospitals shall continue to be based upon the Prince of Wales's Hospital at Plymouth as their central hospital, and that the other smaller hospitals of the rest of Cornwall shall be based upon the combined Truro and Redruth hospitals. These two, it is recommended, should combine at least so far as to share the same staff of physicians, surgeons, and specialists, and to develop those special departments which they already possess. The Royal Cornwall Infirmary at Truro would develop as the orthopaedic centre, establish a fracture clinic, and also throat, nose, and ear and ophthalmic departments, while the West Cornwall Miners' and Women's Hospital at Redruth would become the maternity centre and an outlying radiological centre linked with the national radium centre at Plymouth. In both would be treated general medical and surgical patients.

[2] *Amer. J. Dis. Child.*, 1937, **54**, 750.

THE CASH BASIS FOR PROFESSIONAL ACCOUNTS

Recent correspondence in the columns of a technical periodical—*Taxation*—suggests that some misapprehension still exists as to the precise nature of the cash basis, and particularly as to the result of a change of proprietorship, in whole or in part, on the income-tax liability of those concerned. The point around which discussion often ranges is whether the vendor of a practice should account for income tax on the cash received by him after the date of sale, or, as it was put in a letter published by the journal referred to above, "What law prevents the Revenue (seeing they will not have another chance) from including the outstanding debts in that adjusted assessment, less, of course, an allowance, based on experience, for bad debts?" The writer proceeds to answer the question by adding: "I don't see how such an assessment could be resisted." With all respect we differ from his conclusion. The matter is one which has created discussion and misunderstanding for many years, but in essence is fairly simple. The professional profit of any particular year is the excess of the year's earnings over the year's expenses. Where credit is given the earnings of the first year—that is, the value to the practitioner of the consideration given or to be given for the services rendered—will clearly be less than the cash he will receive in the same year. There will be a "lag" in his cash receipts represented by, say, £*x*. But the Revenue authorities will rightly require him to include that sum in his gross earnings. At the end of his second year he may have received the £*x*, but another "lag" has been set up of, say, £*y*, and he will have to add to his cash receipts for the second year an amount represented by the excess of £*y* over £*x*. After, say, three years, however, it is probable that the cash receipts from work for previous years will be about equal to the uncollected debts arising out of the work of the year under consideration; the "lag" will have vanished, the cash receipts will have become a reasonably reliable measure of the year's earnings and the most convenient way of arriving at the profit. That is recognized by

the income-tax authorities, and is the basis on which most medical returns are made and accepted. Let us now look at the "final" year—that is, the year immediately prior to the sale of the practice by A. to B. A.'s cash receipts in that year are, we will suppose, £2,000, and he expects to receive a further £500 as the outstanding debts are collected. There seem to be very firm grounds on which A. could resist an assessment based on regarding his gross earnings for the final year as £2,500. In the first place that amount is clearly £500 too much: all the facts indicate gross earnings of £2,000 only in one year; secondly, the £500 represents A.'s compensation for having accounted for tax in his first three or four years on sums in excess of his cash receipts for that year. The Revenue cannot have it both ways; they cannot put the cash basis aside when the result is inadequate and adhere to it when it is excessive—and to do them justice they do not desire to do so. We have stated the simplest case—that of a sale of a single-handed practice—but the same principle applies where the change in proprietorship operates through a change in the constitution of a partnership—that is, the outgoing partner should not be required to account for tax on cash received by him after the date from which the change takes effect. Where, however, a partnership is concerned the question is one which usually affects the partners only, the amount of tax payable not being materially affected, and in such circumstances the precise terms of the agreement entered into by the partners will of course govern the matter so far as they are concerned.

MEDICAL WORK IN THE SUDAN

The report of the Sudan Medical Service for 1936 reflects the greatest credit on the Director and his staff. It is a mine of interesting information, and every item is readily accessible. When it is recalled that there are only forty-three British medical officers in the Sudan Medical Service, and that the country, though sparsely populated, is vast in extent, the quality, quantity, and diversity of work performed, as described in the report, compel the reader's admiration. A wise delegation of authority to native officials is the keynote of the administration. In addition to fifty-two Sudanese medical officers, trained at the Kitchener School of Medicine, Khartoum, there are 239 Sudanese assistant medical officers. These latter are selected after several years' training as hospital orderlies. They first undergo a year's special course, followed by an examination. They are then placed in charge of dispensaries. A network of these dispensaries, 337 in number, covers the whole country, and thus brings medical aid within reasonable reach of the entire population.

"The establishment of an adequate hospital and dispensary service is the first task in the medical administration of a country, as it enables the confidence of the people to be gained, and sweetens the pill of preventive medicine which follows it; but it is essential that the progress of the second and really more important function of a medical service, that of prevention of disease, is not held back by lack of funds owing to the cost of the more popular and spectacular curative branch."

The report tabulates a remarkable series of figures showing the progress made in the last ten years. In 1927 in-patients admitted numbered 33,407, out-patient attendances were 1,457,706, and 3,445 operations were performed; the respective figures for 1936 were 96,081, 6,500,441, and 11,229. A serious epidemic of cerebro-spinal meningitis occurred during the first half of the year under review, involving more than 13,000 cases and over 9,000 deaths. The provinces of Darfur and Kordofan suffered most heavily. In Khartoum province there were 360 cases with 251 deaths, a case mortality rate of 69.7 per cent. It is recorded that two-thirds of the cases were in males, of whom the majority were engaged in arduous manual labour. General prophylactic measures in this province were successful in keeping the epidemic within bounds until the advent of the first rains secured its termination. Refugees from Abyssinia introduced small-pox into frontier districts of the Blue Nile province in August. Owing to the inaccessibility of this region during the rainy season it was difficult to deal promptly with the outbreak; 501 cases with 132 deaths were reported. It is stated, however, that, owing to a coincident epidemic of chicken-pox, differential diagnosis was a matter of difficulty in some cases for the subordinate medical staff stationed in the area. The incidence of malaria, which still constitutes the most important public health problem in the Sudan, assumed almost epidemic proportions in parts of Merowe, Dongola, and Wadi Halfa districts, climatic and other factors favouring the breeding of mosquitos. A permanent increase in the sanitary service in these districts is deemed necessary in order to prevent a repetition of the outbreak. There were thirty-eight cases of blackwater fever during the year, with fourteen deaths; the majority were Sudanese Arabs; British cases numbered three, one of which was fatal. From Omdurman a number of cases of mercury poisoning were recorded. In the instance of one man, who died, mercury was recovered from his organs, and it was discovered that he had been treating himself for gonorrhoea with intra-urethral instillations of native butter (semn). A sample of the semn proved to be contaminated with mercury. Analysis of samples from all parts of the country pointed to an origin of contamination in the Western Sudan. It transpired that semn producers in that region were using drums which had previously contained abavit, a preparation containing mercury biniodide and mercury perchloride, used as a seed dressing. One drum was found still to contain traces of mercury. Measures were immediately taken to seize and destroy all empty abavit drums, and semn producers were warned against their use. As a result no further contamination was discovered and no further cases of mercury poisoning were reported.

The Secretary of the British Medical Association receives requests to appoint delegates to various conferences which take place in the summer months. He would be glad to have early information regarding proposed visits by members to places abroad this year.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

FOREIGN BODIES IN THE TISSUES

BY

HAROLD DODD, M.Ch., F.R.C.S.

The removal of foreign bodies from the tissues can be a humiliating and a time-consuming experience, but a preliminary study and preparation will eliminate much of the usual difficulty. Foreign bodies in the eye and the respiratory, alimentary, and urinary tracts are not dealt with in this article, nor are wartime missiles.

In general practice and hospital service three types of foreign body are commonly met with: (1) hypodermic needles in the arm and buttock; (2) domestic needles and pins in the hands and feet; (3) miscellaneous substances—glass, wooden splinters, shot, metal filings, pieces of clothing, etc.

Hypodermic Needles

Treatment with insulin at home and the large amount of injection therapy now given result fairly often in hypodermic needles being broken in the tissues. Apart from the surgical aspect a medico-legal point is raised, and a working rule can be laid down that even though the needle fragment is in a situation where it is apparently innocuous the patient or his guardian must always be informed, a radiograph taken, and removal advised. If intervention is thought to be of doubtful value, then a consultation with a colleague should be sought and a considered opinion expressed, thus safeguarding both patient and practitioner.

An embedded hypodermic needle may exert a bad effect on the patient's health, as the following case illustrates:

A diabetic girl aged 20 was given insulin twice a day by her mother; she took a generous diet and kept sugar-free. One day a hypodermic needle broke in her arm, and after this, although more insulin was given and the diet was reduced, the glycosuria returned. She was admitted to hospital, where the needle was located by radiographs, but its extraction was deferred until the urine was sugar-free, owing to the possible danger of spreading infection in the wound. After a month's treatment the sugar persisted, and the opinion was formed that there was low-grade sepsis about the needle which exerted a toxic effect on the islets of Langerhans; consequently the needle was removed. There was a bead of pus around it, although no external signs of inflammation were visible. The next day the patient was sugar-free and has remained so.

It is common knowledge that hypodermic needles almost invariably break at the same place—that is, the junction of the shaft with the syringe piece, where the old-type plated needles of carbon steel corrode; the newer stainless needles, which bend rather than fracture, are better. Before giving an injection the point of the needle should always be inspected and tested, and from time to time it will be found broken off or bent over; a blunt needle has indifferent penetrating power.

Domestic Sewing Needles

Domestic sewing needles are a more difficult problem. They often penetrate deeply, perhaps between the metacarpals or metatarsals; besides which, some patients delay seeking treatment until the point of entry has healed and cannot be seen. Stories of a fortuitous spontaneous evacuation some distance away from the original wound are common, but such occurrences are exceptional.

Treatment

It is a *sine qua non* that all parts containing foreign bodies, suspect or actual, must be radiographed in two or more planes before removal is attempted. Stereoscopic films are a further assistance. Unfortunately, not all articles are opaque to *x* rays, but it is surprising what an amount of detail a good film will show.

Objects buried in the tissues should never be removed without: (1) access to an operating theatre or an *x*-ray table arranged as an operation table; (2) a good light; (3) preliminary radiographs in two or three planes, or a portable *x*-ray apparatus; (4) plenty of time; (5) an anaesthetic—local infiltration, spinal, or general; (6) when possible, exsanguination of the part by a tourniquet; (7) the patient being admitted to hospital or a nursing home.

The incision should be planned with due regard to the anatomical structures—for example, avoiding nerves, tendons, and arteries. An approach transverse to the axis of the needle must surely strike it, and should be used when permissible. The *x*-ray film is but a shadow: film distances and sizes are misleading, and must be estimated in relation to palpable bony points rather than by measurement on the negative. Thus "one inch below the radial styloid" will not be satisfactory, but a proportion of the distance between the ulnar and radial styloids—for example, a half or a third—is likely to be less erroneous. Further precise assistance is available from one of the following methods, modified according to the individual problem.

A long straight cutting needle is inserted into the part, aimed to strike the middle of the foreign body. Then a second needle at right angles to the first is similarly introduced. Lloyd (1936), writing on foreign bodies about the tarsals and metatarsals, advises the use of a Kirschner wire in the same manner, whilst a further aid to orientation is the insertion of a Michel's clip or clips into the skin. *X*-ray films in two positions are then taken, and from them the surgeon estimates the lie of the foreign body and plans the incision accordingly. If the guide needles are wide of the mark they are reinserted, or additional ones are used and more films are taken. The time spent in this preliminary investigation obviates tedious fumbling operations, with possible injury to important structures; in fact, the actual extraction often proves to be easy.

Harris (1936) describes a practical point that assists in the location of a recently entered foreign body. He states that as the needle penetrates it makes a track of ruptured capillaries and contused tissues, with a small extravasation of blood, and that if the part is completely exsanguinated this track remains red, brown, etc. (according to its age), and is clearly visible. It is traceable for several weeks after the accident. The limb is elevated for five minutes and an Esmarch bandage is applied. The position of the needle is estimated from the history and the radiograph, and the incision passes through the exact or an approximate point of entry. The dark red track, now easily identified in the white glistening tissue, is carefully followed to the foreign body. The method is applicable only to bodies in the upper and lower limbs, not for the buttocks. Caution in the use of a tourniquet on the arm and forearm is always necessary, for a median or ulnar palsy is rapidly caused; good padding and the minimum

of tension for the shortest period possible are the points to observe to avoid this complication.

Another method of attack is advised by Chitty (1936). After the preliminary tourniquet the area is infiltrated with novocain, and, if the body is opaque to *x* rays, then under the fluorescent screen a hypodermic needle is inserted into the tissues guided by the history and the radiographs, probing until its point touches the foreign body. The light is turned on, the part incised along the needle, and the object located. In some cases it is an advantage to use two needles, directing the shafts approximately at right angles to each other, and on localization the incision is made between them.

In spite of these aids the operator may fail to detect the foreign body; then with the uncovered sterilized finger palpation of the wound tissues is helpful: the naked finger is more sensitive than the rubber-gloved hand. In the buttock, however, the meshes of connective tissue are dense; they feel hard and grate almost like a foreign body, so that in this situation digital palpation is of limited value. Despite its usefulness digital palpation is not the method of choice in seeking foreign bodies in a wound, although admittedly it is sometimes necessary under the *x*-ray screen. Wounds from which foreign bodies have been removed should be but loosely closed; a drain is often advisable, and always so if sepsis is apparent.

Fish-hooks and Crochet Needles

A fish-hook or crochet needle usually only partly penetrates a finger or hand. In such a case the part should be disinfected, anaesthetized by 1 per cent. novocain or 1 in 1,000 pantocaine, and the article grasped and pushed (not pulled) so that it emerges through the skin, which is snicked where the head presents. The bulbous or barbed extremity—for example, a crochet needle—is pressed on until the head protrudes; it is then cut off with wire-cutting forceps or pliers and the stump withdrawn. Incision or set operation is rarely necessary.

Sewing-machine Needles

A finger may be trapped by a sewing-machine needle, which passes through the nail, the phalanx, and the pulp of the finger; then, by a combination of bending and snatching away of the hand, the needle breaks. In this event the pulp of the finger should be anaesthetized and the finger pressed hard down on to a metal plate; the point of the needle is thus forced to retrace its path through the bone, and the fractured end appears under the nail. A little manipulation or enlargement of the hole of entry suffices for the needle to be seized with an artery forceps and extracted.

Miscellaneous Objects

Many foreign bodies—for example, wood, glass, aluminium, clothing, fish-bones, etc.—are not opaque to *x* rays. They are often associated with a wound which, whether a foreign body is suspected or not, should be treated as if it were infected, carefully explored, probed, and if necessary extended, the contused tissue being excised. Lacerations containing or suspected of containing glass require detailed search, as the sharp fragments travel unexpected distances. This surgical treatment will locate articles and missiles known and unknown, and it avoids infection and complications.

Occasionally a wound containing glass or a splinter will heal; a capsule of fibrous tissue forms around it, and no further trouble may be experienced. On the other hand, the area may become painful to touch, causing the patient to seek advice. If the discomfort is constant and a nodule is palpable, exploration of the part is indicated. Glass fragments and needles are not as a rule heavily infected, and wounds containing them often heal by first intention. Lacerations contaminated with wooden splinters, metal filings, fish-bones, and pieces of clothing usually suppurate. All wounds below the knee, including superficial abrasions, must be given prophylactic anti-tetanic serum.

Gravel Rash

In cases where the foreign particles have not been removed, gravel rash of the face and hands heals with a disfiguring scar, which is only corrected by an extensive plastic operation; consequently every effort should be made to extract the whole of the foreign matter early after the injury. Under an anaesthetic the wound must be assiduously cleansed—this requiring considerable time—but not sutured, and compresses of 12 per cent. sodium sulphate should be applied four-hourly until healing is complete. The hypertonic action of these applications encourages extrusion of possible remaining particles; but their extraction is essentially the surgeon's responsibility, and demands patience, resource, and resolution.

Splinters

Splinters, if visible, are easily recovered by forceps, unless the wood is rotten, when the incision must be enlarged to allow of complete extraction. Metal filings are often oily and infected. In addition to scrupulous cleansing the wound must not be sutured, and a drain should be inserted.

Pellets

Pellets from air-guns and sporting guns are met with in civil hospital practice. Less often the plug of a blank cartridge may cause a wound. Although this paper is not intended to include these types of injury, two essentials are worthy of mention. The first is that the wound should never be closed after removal of the foreign body even though a joint be involved; and the second, that anti-tetanic serum should always be given.

REFERENCES

Chitty (1936). *British Medical Journal*, **1**, 446.
Harris (1936). Ibid., **1**, 386.
Lloyd (1936). Ibid., **1**, 310.

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee three annuities and thirty-four grants were awarded. The total amount voted was £995.

One of the recipients was a doctor who is quite unable to practise owing to paralysis. He is married and has one child of school age. His grant was renewed for the fifth year in succession. The following letter has been received in acknowledgment:

> "It has not been possible owing to my paralysis for me to write to you before, but now I have a typewriting machine on which I can tap with one finger of my left hand. It gives me great pleasure to address you personally. I am truly grateful for all the Fund has done in the past and is doing at the present time on my behalf. The Fund is truly a marvellous society. I do not like to think what our position would be without your magnificent help. I beg to convey my own and my family's most sincere thanks to the Committee."

Subscriptions and donations are urgently needed, and may be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

THE NEW INSULINS

THIRD LETTSOMIAN LECTURE

The third and concluding Lettsomian Lecture was delivered by Dr. GEORGE GRAHAM before the Medical Society of London on March 7, the subject of the lecture being the new insulins. The first two lectures were reported in the *Journal* of March 5 (p. 529) and March 12 (p. 579).

The new insulins, said Dr. Graham, had been available only for a short time, one of them for two years and the other for one year, and he himself had certainly not had enough experience to be dogmatic as to their value. His conclusions were for the moment tentative. Insulin when first introduced in 1922–3 was a very crude product, with certain impurities which had no value for the treatment of diabetes. Later the ordinary insulin became far purer. Nevertheless, the number of patients whom it seemed difficult to control had become greater. It had been suggested that this was due to a change in the insulin, the older insulin having a slower action than the newer.

The problem of looking after these difficult cases had been dealt with in various ways. The late Dr. Otto Leyton gave a mixed oil and insulin, which, however, was somewhat painful; others had tried a mixture of insulin and adrenaline, and others, again, a mixture of insulin and pituitrin. Then came the modification devised by Hagedorn of protamine insulin, an insulin being produced which was insoluble and had a much slower action than the ordinary product. Scott in Toronto, who had already found that zinc was always present in the pancreas, added zinc to protamine insulin, so that now there were three insulins on the market: first, the ordinary insulin; secondly, the protamine insulin of Hagedorn, known as "insulin retard"; and, thirdly, the insulin introduced by Scott and Fisher in the form of zinc-protamine-insulin. Hagedorn's insulin had been in use for two years, zinc-protamine-insulin for only one. The former had to be given, as a rule, in two doses; zinc-protamine-insulin could very often be given in one, which was a great advantage as many patients disliked the two injections.

Overdose

Dr. Graham devoted most of his remaining time to showing a series of case charts and discussing them. In most of these cases he had started with two doses of ordinary insulin a day, and then introduced a certain number of units of one of the newer insulins. Most often he used a mixture of ordinary soluble insulin and zinc-protamine-insulin. In a certain number of cases he had been able to do away altogether with the ordinary insulin and to use only the zinc preparation. He dealt at some length with the question of overdose. When protamine insulin was introduced it was said that patients would notice the signs of overdose very much better, because the blood sugar would go down more slowly, and they would have time to recognize that something was the matter and to take sugar. But he found that some of his patients who did not recognize their signs of overdose were no better off with zinc-protamine-insulin. He had heard of some who when put on zinc-protamine-insulin suffered very severe overdosing, although in fact that had not happened among his own patients. But he did not think the new insulins were any better in this respect than the old.

The great advantage was the ability to give the day's injection in one dose. Hagedorn originally introduced his insulin for difficult cases, and in a number of such patients, whose case sheets he exhibited, Dr. Graham had found the product of value. A mixture of ordinary and "retard" had proved very useful indeed. He showed three cases of failure of control, the patients having their overdose soon after breakfast and feeling very miserable, but by a judicious working in of the new preparation with the old it had been possible to restore them to a happier condition. Among child patients especially the "retard" made them much better, easier to look after, and less irritable.

At first he thought the slow-acting insulin never acted in quite the same way two days running. But since then he had looked up a number of patients who had had only ordinary insulin and had found the same fluctuations if the patient had his diabetes well under control. Therefore he had come round to the view that it was not the failure to absorb the insoluble product which gave rise to the erratic sugar curve, but that the fault lay with the severity or type of diabetes. Some patients raised objections to the new insulin, saying that with ordinary insulin they knew when to expect their overdose; others refused to change because it would disarrange their habit of life, and others again were disinclined to try anything new. Nevertheless, he thought the new insulins were of great value for the mild cases especially, and he hoped that by a blend of insulins, using the slow-acting and the quick-acting together, control of the difficult cases might be obtained.

The fifteen years' experience of treatment of diabetes which had been the general subject of his lectures had been a most interesting period in which to work, and he felt increasingly what a debt of gratitude was due to Banting and Best.

A vote of thanks to Dr. Graham for his lectures was accorded on the motion of Sir WILLIAM WILLCOX, seconded by Dr. E. R. CULLINAN. The subject of the new insulins was also discussed at the Royal Society of Medicine on March 8, and a report appears in this issue (page 637).

FRANCIS AMORY SEPTENNIAL PRIZE

In compliance with the requirements of a gift under the will of the late Francis Amory of Beverly, Massachusetts, the American Academy of Arts and Sciences announces the offer of a septennial prize for outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs, to be known as the Francis Amory Septennial Prize. The gift provides a fund the income of which may be awarded for conspicuously meritorious contributions to the field of knowledge "during the said septennial period next preceding any award thereof, through experiment, study, or otherwise . . . in the diseases of the human sexual generative organs in general." The prize may be awarded to any individual or individuals for work of "extraordinary or exceptional merit" in this field.

In case there is work of a quality to warrant it, the first award will be made in 1940. The total amount of the prize will exceed ten thousand dollars, and may be given in one or more awards. It rests solely within the discretion of the Academy whether an award shall be made at the end of any given seven-year period, and also whether on any occasion the prize shall be awarded to more than a single individual.

While there will be no formal nominations, and no formal essays or treatises will be required, the committee invites suggestions, which should be made to the Amory Fund Committee, c/o The American Academy of Arts and Sciences, 28, Newbury Street, Boston, Massachusetts, U.S.A.

Sir Ashley Mackintosh, Extra Physician to His Majesty's Household in Scotland, who died on October 14, 1937, left personal estate in Great Britain valued at £34,590. After a few personal legacies he left his property, subject to a life interest, as to seven-fifteenths to Aberdeen University for the study of medicine; five-fifteenths to Aberdeen Joint Hospitals Fund; and one-fifteenth each to Aberdeen Maternity Hospital, Aberdeen Sick Children's Hospital, and Dr. Barnardo's Homes.

SAFEGUARDING WATER SUPPLIES

MINISTER'S ADVICE TO LOCAL AUTHORITIES

The Minister of Health, Sir Kingsley Wood, on Saturday last issued a communication to local authorities and other water undertakers on the question of their water supplies. He feels it incumbent upon him, in the light of recent experience, to remind water undertakers of the serious responsibility that rests upon them in relation to the purity of the water supplies they control. He points out that it is the statutory duty of all local authorities operating under the Public Health Acts to ensure that water supplied by them to consumers is at all times wholesome, and a like responsibility is expressly placed by Parliament upon water undertakers, whether local authorities or statutory companies, who derive their powers from special statutory enactments.

Appointment of Water Engineers

The communication states that the relative immunity from serious outbreaks of water-borne disease that the country has long enjoyed must not be allowed to obscure the paramount importance of taking all possible steps to ensure that this responsibility is adequately discharged and every practicable precaution adopted to safeguard the purity of supplies. The machinery and methods of control, which must necessarily vary with the circumstances of different undertakings, are matters for the decision of the responsible authorities themselves, but it will be realized that the first necessity is that the undertaking should be under the supervision of a qualified engineer who, in the case of the larger undertakings owned by local authorities, should be a chief officer of the authority directly responsible to the appropriate committee, and in all cases should be in a position to give detailed personal attention to the work.

The Minister states that he has no doubt that water undertakers generally will appreciate the need for maintaining the high standards of administration rightly demanded in a matter of such fundamental importance to public health, but the results that may ensue from neglect of precautionary measures are so serious that the Minister regards it as his duty to impress upon all water undertakers the imperative need for unremitting care in the supervision of the water supplies for which they are responsible.

Constant Watch Necessary

Where water is being supplied without treatment the water undertakers must satisfy themselves that this practice can safely be continued. For this purpose they should keep a constant watch on the quality of the water by frequent analyses. How often the analyses should be made in a particular case depends on local conditions—for example, on the character of the source and of its gathering ground and their position in relation to each other. The Minister is satisfied that under modern conditions more frequent analyses are needed in many cases as a minimum precautionary measure, particularly where there is a tendency to fluctuation in the composition or bacterial content of the water. The water undertakers should be guided as to the frequency of analyses by the views of their expert advisers after examination of the local conditions. It is not sufficient, however, to rely on results from analyses alone. Regular and frequent inspections should be made of the area forming the gathering ground of any spring or stream used as a source of supply and of areas surrounding underground sources of supply situate in or near the outcrop of the strata from which the water is drawn, and all practicable steps should be taken to remove possible sources of contamination in these areas. If as a result of their analyses and inspections or for any other reason the water undertakers have cause to think that any of their sources of water supply cannot be made and kept free from liability to pollution, they should immediately treat the water by effective methods of purification.

Control of Treatment of Water

Where the water is treated the treatment should as far as possible be automatically controlled, and where the treatment includes chlorination the dosage should be automatically and continuously recorded. The efficacy of any form of treatment given should be verified by frequent tests of the treated water. The method, extent, and control of treatment required in any particular case are also matters on which the water undertakers should be guided by expert advice. Periodic analyses should be made of the raw water in order to keep a check on any change in its character and on the treatment needed. The Minister stresses the point that treatment of the water should be regarded not as a complete security in itself but as complementary to the taking of all practicable steps to seek for and remove the causes of pollution of the raw water.

Special Precautions during Works

Sir Kingsley Wood emphasizes that the utmost vigilance is also required to ensure that no risk of contamination of the water supplies arises from operations in connexion with the normal maintenance and improvement of waterworks, such as extensions of the works, the reconditioning of wells, reservoirs, and filters, the repair of pumping plant, etc.; and in some cases—for example, where men are engaged on work in a well—it is essential either to cut off the supply from the well until after the work is completed or to give precautionary treatment to the water.

Importance of Co-operation

The Minister further points out that the administrative responsibility for a service of such vital importance to health can only be successfully discharged if there is effective collaboration and co-operation between those responsible in their various capacities for the conduct and efficiency of the undertaking and between the water undertakers and the local authorities of areas served by them. It is essential that local authorities who are themselves water undertakers should ensure that the water committee and its officers work in close co-operation with the public health committee and the medical officer of health. Where the water undertakers are not the local authority for an area supplied by them they should always be ready, on request, to furnish full information to that local authority or its medical officer of health as to the quality of the water supplied and the precautions taken to safeguard its wholesomeness. On the other hand, local authorities should make it their duty to bring to the notice of water undertakers cases of enteric fever or other diseases likely to be water-borne, and also any building development or other operations in the local authority's area which might affect the purity of a source of water supply.

On March 8 the Croydon Borough Council authorized its special Typhoid Committee to appoint a water engineer as a principal officer of the Corporation, in accordance with the suggestion made in the report of the public inquiry by Mr. Harold Murphy, K.C., and endorsed in the letter sent to the Corporation by the Minister of Health. On March 14 the Council agreed to set up a committee to deal exclusively with water matters.

Reports of Societies

THE VALUE OF ZINC-PROTAMINE-INSULIN

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on March 8 a discussion took place on the value of zinc-protamine-insulin in the treatment of diabetes.

Dr. R. D. LAWRENCE said that as a result of some work on the protamine insulin known as "insulin retard" two years ago he had suggested that insulin was secreted in two ways—namely, a small continuous secretion to control the carbohydrate metabolism, especially from endogenous sources of sugar, all the time, and an added secretion of insulin after a carbohydrate meal to deal with the augmented intake of carbohydrate substance. Since then his further work on the new insulin had confirmed that view. The ideal insulin preparation to reproduce normal function would have two actions: a slow and continuous one, and a short and rapid one. That was asking a great deal of any preparation. There were now three insulins available: the old quickly acting type, the original Hagedorn preparation known as "insulin retard," and the more slowly acting preparation in which a small amount of zinc was added to the protamine preparation. Dr. Lawrence exhibited the following table to show how these insulins acted (in adults):

	Units	Duration (hours)	Hypoglycaemia commonly at	Type of Action
Soluble ..	10	4–6	2–4 hours	Quick and strong; balances big carbohydrate meals
	20	6–8	3–5 ,,	
	30–40	10–12	4–9 ,,	
"Retard" ..	to 20	8–10	4–6 hours	Slower and weaker, balancing less carbohydrate
	to 40	12–16	6–9 ,,	
	60+	occa. 24	7–12 ,,	
Zinc-protamine	to 10	6–8	4–5 hours	Very slow and weak; balances carbohydrate poorly
	to 20	12–14	8–12 ,,	
	to 30	18–24	8–20 ,,	
	to 40	24+	16–24 ,,	

Unless the treatment with these new preparations could be brought down to one dose a day there was not a great advantage in the new insulin over the old. He had not been in a hurry to give the new preparations to patients who were having two doses of soluble insulin a day. Nevertheless, in the mild insulin case it was a great advantage to give 20 units of the zinc-protamine-insulin in one daily dose before breakfast. This was a great blessing to the general practitioner. His patient had to have insulin only once a day, a more liberal diet was allowed, and the general health remained excellent. With the more severe type of diabetes, the patient who needed 40–60 units a day, he tried to find a dose which would act for twenty-four hours, but many patients, especially young people and children, were so insulin-sensitive that it was impossible to treat them on one dose a day.

Rate of Action of Insulin

Dr. R. AITKEN said that the larger doses of zinc-protamine would exert their effect not only for twenty-four but for forty-eight or even sixty hours. The duration was not constant for a given dose for all patients; it varied somewhat from patient to patient. He wondered whether during that prolonged action insulin was being absorbed from the depot into which it was injected at a constant rate of so many units per hour, or whether the rate of absorption, and therefore the rate of action of insulin in the metabolism of the body, was greater during the earlier part of the time and tailed off towards the end. One would expect the latter, but it was a little difficult to get convincing proof. It was likely, to judge from his case-sheets, that these doses of zinc-protamine-insulin reached the peak of their activity quite soon after being given. They did not, of course, produce hypoglycaemia quite soon after being given, but there were other factors which determined the time when hypoglycaemia arose. If it were granted that the maximum activity was developed soon and diminished progressively, little diagrammatic pictures could be made of the daily course.

Dr. E. P. POULTON was not sure that Dr. Lawrence had been quite fair with regard to "insulin retard." In a communication to the Association of Physicians last summer it was stated that protamine insulin—Hagedorn's preparation—lasted nearly as long as zinc-protamine-insulin; while that might not be true, protamine insulin was, as regards time, an intermediate product between the soluble and the zinc-protamine-insulin. He had on occasion used the three insulins together. As regards changing from one to the other, he related a striking case of a woman who had a severe increase of her diabetes as a result of pregnancy, and had first been put on three doses a day; afterwards she was put on two doses of protamine insulin, about 100 units a day. When the zinc-protamine-insulin was substituted the daily dose came down to 40 or 50, and for many months now she had remained on that basis of dosage, and was doing better than with the three doses of soluble insulin or the two doses of "retard."

Dr. GEORGE GRAHAM said that he was inclined at the moment to use a mixture of ordinary or soluble insulin and zinc-protamine-insulin. Only in a certain number of cases had he been able to do away altogether with the soluble insulin and use only zinc-protamine. In a number of cases he had used a mixture of ordinary and "retard," giving 50 units of "retard" in the morning and 20 or 30 units of ordinary at night, and in three cases he had got an effect quite unexpected in the way of overdose, but an effect favourable on the whole to that combination. Dr. W. W. PAYNE said that in some cases in which he had used "retard" he had found great variation. One could not predict in any given subject which type of insulin was the best to use. One was less liable to get severe hypoglycaemic reactions on "retard" insulin than on the zinc preparation, so that if he could find a formula with "retard" insulin which was satisfactory he preferred to use it. Unfortunately in children who became absolute diabetics, requiring something like 100 units a day, it was very difficult to get the required balance, but he had been successful in such cases in keeping a reasonable balance with just one dose of 100 units of zinc-protamine-insulin. With these newer insulins there were variations in some cases from day to day, but often patients, in spite of this inconvenience, refused to go back to soluble insulin, saying they were so much more comfortable on the one-dose-a-day method.

Dr. LAWRENCE did not approve of the "blunderbuss" method mentioned by Dr. Poulton of giving the three types of insulin together. It had not appealed to him from what he had seen of the results. One was dealing with at least two irregular forms of insulin, and their respective irregularities did not cancel one another out but more or less added together, and he had found the most enormous variations in experiments he had made with that method.

Vegetable Proteins for Diabetes

At the same meeting Dr. W. W. PAYNE brought forward a short communication on the use of some vegetable proteins in the treatment of diabetes. The subject was to have been developed at that meeting by the late Dr. Otto Leyton. Dr. Payne spoke in particular of the protein preparation called "profarin," said to be derived from locust beans. His trials with this substance so far, which had appertained only to diabetic children, were inconclusive, but when it was added to the basic diet a number of cases had been found in which there was no increase

whatever in the excretion of sugar, and in a number of other cases, while there was an increase, it was not of such an order as would have followed an equivalent amount of protein in the ordinary form. Dr. R. D. LAWRENCE said that he had had some slight experience of the profarin preparation. It had no appreciable starch or soluble carbohydrate in the usual sense. He thought it desirable that further work should be done on adult cases not having insulin.

TOMOGRAPHY

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland on February 11 Dr. F. G. STEWART read a paper on tomography in chest radiography.

Dr. Stewart said that tomography was the taking of a radiograph of a section through the patient, objects in planes superficial or deep to this selected plane being blurred out; several tomograms were needed in each case. Films were shown illustrating the value of the method in demonstrating cavitation in pulmonary tuberculosis. In twenty-two out of fifty cases tomograms gave an altogether different conception of the underlying pathology; unsuspected cavitation was demonstrated in 40 per cent., and in 74 per cent. information additional to that obtained by ordinary radiography was given.

The president, Dr. E. T. FREEMAN, said that at the meeting of the Association of Physicians in Sheffield in 1934 a tomograph had been exhibited the cost of which was £1,200. The model designed by Dr. Stewart was considerably cheaper. In the discussion which followed many members took part, among them being the president of the Academy, Dr. A. R. PARSONS, and Drs. H. F. MOORE, T. M. CORBET, W. R. F. COLLIS, J. C. FLOOD, ST. G. SMITH, and A. THOMPSON. Several questions were asked, and Dr. STEWART, in replying, said that what he had done was just to alter slightly Twining's modification of the tomograph, which meant that it could be produced at a lower cost.

INDUSTRIAL DISEASES

At a meeting of the West London Medico-Chirurgical Society, held at the West London Hospital on March 4, with the president, Dr. D. G. RICE-OXLEY, in the chair, a lecture was given by Dr. DONALD HUNTER on industrial diseases.

Dr. Hunter began with a reference to the diseases of coal-miners, in particular miners' nystagmus and "beat knee," the latter caused by the cramped posture in which the men worked in the pit. In the iron-mining and smelting industries great precautions had to be taken for the protection of the eyes of the workers, and until this was done the toll taken of sight was enormous. More than once it had happened that an occupational disease or liability had been discovered, not by a medical man but by those engaged in the industry itself. For example, it was the secretary of the glassblowers' trade union who, at the end of last century, discovered the condition known as glassblowers' cataract. As a result of the precautions now taken this condition was disappearing. Turning to anthrax, the lecturer mentioned that at the London Hospital, over the period 1884 to 1935, the cases had numbered 116, of which ninety-eight were occupational. Of these only one was of the deadly pulmonary type, and among the whole of the cases the deaths had numbered only eleven. He described the precautions taken to prevent anthrax among wool-sorters by the careful cleansing of all wool at the port at which it was landed in this country. The same methods of protection, however, were not applicable in the case of furs and skins. He next mentioned Weil's disease, to which London sewer workers were particularly liable. It was a disease of very wide occurrence, and was found in workers in the sugar-cane fields of Queensland and on the canals of Holland. After touching upon some of the new diseases which were appearing with developments in chemical industry—such, for example, as the use of alkalis for chlorination processes—he mentioned the heavy toll of life which lead poisoning had exacted. Even now, owing to the carelessness of workers in some departments, lead poisoning was not infrequent. He objected in particular to the spraying of lead pigment by means of a gun, which he described as an invention of the devil. Occupational dermatitis in its many forms was mentioned, alkalis heading the list of causative agents. Chromium salts also caused a very severe dermatitis. In considering occupations which involved the risk of cancer the industrial use of *x* rays should not be overlooked. A large number of industrial workers were now using powerful *x*-ray apparatus, and it seemed possible that the same calamity might befall some of them as befell the early medical pioneers in this subject.

Means of Prevention

After referring to diseases caused by dust, and mentioning the most dangerous of dusts—namely, silica and the silicates—Dr. Hunter suggested the various means of preventing disease in industry. The first line of prevention was the elimination of dust and fumes. The next was the installation of protective apparatus uncontrolled by the workman; and the third, the education of the workman as to the nature of his dangers. Cleanliness of working places and the bodily cleanliness and general hygiene of the worker were obviously important. England protected the workman in its factories against disease better than any other country in the world, not excepting Germany, where the regulations were more stringent but were less punctiliously followed. England had also the advantage of a Factory Department of the Home Office, which was at all times ready to give advice and to take any necessary action.

At a meeting of the Devon and Exeter Medico-Chirurgical Society on February 24, with the president, Dr. ROBERT SCOTT, in the chair, Dr. FRANK ROPER showed a case of what he termed emphysema of unknown origin, the treatment of which was discussed by Dr. R. L. MIDGLEY. Dr. MARSHALL SCOTT showed a decidual cast from the non-pregnant horn of a bicornuate uterus. A thirty-seven weeks' foetus was delivered from the right horn and the cast was expelled from the left horn on the fifth day of the puerperium.

O. Henrich (*Zbl. Chir.*, February 5, 1938, p. 316) reports a case of benign ulceration of the rectum. He believes that the condition is much more frequent than is generally assumed, though the diagnosis is often missed. The lesion is usually mistaken for an inoperable carcinoma of the rectum; the patients, however, are cured after some time. In the case reported by the author the condition proved inoperable and a colostomy was performed. After ten weeks all traces of the tumour disappeared and a retrospective diagnosis of benign ulceration with an extensive inflammatory infiltration was therefore made. Laparotomy one and a half years later confirmed the absence of neoplastic infiltration. The rectum, however, was stenosed and the colostomy had to be left open.

Local News

ENGLAND AND WALES

Blood Sedimentation Rate Test

The Empire Rheumatism Council has convened a meeting of medical scientists to consider means to endeavour to standardize the blood sedimentation rate test, important in the treatment of rheumatic disease. The meeting will be held at the Royal Society of Medicine at 11 a.m., Saturday, March 26, the opening day of the International Congress on Rheumatism. The following have accepted invitations to attend: Dr. Douglas Collins, Harrogate; Dr. Harry Coke, London; Dr. Warren Crowe, London; Professor S. Davidson, Aberdeen; Dr. Gibson, Bath; the pathologist, Charterhouse Clinic for Rheumatism, London; the pathologist, St. John Clinic and Institute, London; Mr. Joseph Race, Buxton; Mr. H. B. Salt, Droitwich; Dr. J. W. Shackle, London; Dr. L'Estrange Orme, London; Dr. C. W. Buckley, Buxton; Sir William Willcox, London; and Dr. Mervyn Gordon and Dr. W. S. C. Copeman, chairman and hon. secretary respectively of the Scientific Advisory Committee of the Empire Rheumatism Council.

Moorfields Eye Hospital Dinner

The annual dinner of the Royal London Ophthalmic Hospital took place on March 10 at the Langham Hotel. The toast of "The Hospital and School" was proposed by the chairman, Mr. A. C. Hudson, consulting surgeon. Mr. Theodore W. Luling, chairman of the hospital, and Mr. Charles Goulden, dean of the school, replied. The health of the guests was proposed by Mr. R. Affleck Greeves, and Major-General W. P. Macarthur, Director-General A.M.S., replied. Mr. P. G. Doyne proposed the health of the chairman. In responding to the health of the School the Dean incorporated his report. The entries, he said, were even larger than in 1936; 114 new students had been admitted between October, 1936, and October, 1937; seventy-seven old students had continued their attendance. Moorfields also provided instruction for students from the British Postgraduate Medical School, these being in addition to the numbers given. The examination results had been satisfactory, and various honours had fallen to old students during the past year. The Dean again drew attention to the urgent need of ophthalmology being placed in its proper position in relation to the other branches of medicine by the foundation of a professorship and a suitable team of helpers. Until this was done it was impossible to achieve more in the direction of teaching and training.

Maternity Scheme for the West Riding

Some idea of the West Riding County Council's scheme for the provision of hundreds of maternity beds in the West Riding and of a medical services scheme was given at the opening of the new Listerdale Maternity Home, Rotherham, reported in the *Yorkshire Post* of March 14. Maternity homes and maternity units are to be provided throughout the West Riding at a capital cost of £308,000, with an annual maintenance cost of £45,000. The Listerdale Home is the first to be opened directly under the control of the county council, and is the forerunner of other schemes for the provision of a further 300 maternity beds in the West Riding. Councillor W. T. Blewitt announced the beginning of a scheme on April 1 to provide home help, and said they had already had hundreds of applications from young women prepared to do the work. Alderman Cartwright said it was proposed to put a unit of eighty beds at the Doncaster Royal Infirmary at a cost of £80,000 and a maintenance cost of £1,586 per year. At Skipton they were going to put a unit of eight beds. At Keighley there would be a new unit, and in the great new hospital in North-West Yorkshire there would be a maternity unit of fifty beds. At Staincliffe there would be fifty beds, and at Wakefield eighty beds. The new general hospital between Barnsley and Doncaster would provide another twenty beds.

Anti-gas Training at L.C.C. Hospitals

Many of the London County Council's hospitals and other institutions would, in the event of war, be used as casualty clearing hospitals and base hospitals, and it is considered essential that the whole of the staff at these establishments, except purely casual employees, should receive anti-gas training. Almost all the medical and senior nursing staff of the hospitals and mental institutions have already received training from Home Office instructors, and those so trained are undertaking that of the junior nursing staff. Other arrangements, however, have to be made for the training of the non-professional staff, numbering several thousands, many of whom will be required to perform duties in connexion with cleansing contaminated casualties, decontaminating buildings, and forming fire squads. It is accordingly proposed that five officers in the Council's service who have been trained as qualified instructors at the Government civilian anti-gas school, Falfield, shall be released from their ordinary duties so that they may undertake the training of this staff. It is expected that the work will be substantially completed within twelve months.

IRELAND

The Queen's University of Belfast

During the past few days an appeal has been sent to graduates of the Queen's University for subscriptions to a fund which has been inaugurated to meet the urgent needs of the University. It is pointed out that the income is just sufficient to "carry on" in a manner which does not do justice to the progressive spirit and enterprise of Ulster. The need for modern laboratories is urgent, but even more clamant is the need for proper buildings to house the departments that are accommodated in the old wooden erections used for the U.V.F. Hospital during the war. The latter have been in use long past the usual span of life of wooden buildings, and their further repair and maintenance is rapidly becoming out of the question. And yet they are the only available place for housing the various departments of one of the most progressive universities in the Kingdom. A scheme for the orderly and harmonious development of the University which will meet the more urgent needs has been prepared by the architects, but for this a sum of upwards of £250,000 is required. The financial position has caused a great deal of anxiety to the University authorities as the income from all sources is considerably less than half of that of any other university of a similar size and age in the United Kingdom. The Vice-Chancellor produced the following figures of the number of students and the income of universities during 1935–6:

	Number of Full-time Students	Total Income
Belfast	1,587	£95,263
Birmingham	1,487	£217,904
Bristol	1,033	£200,148
Leeds	1,663	£264,954
Liverpool	2,119	£250,104

The appeal eloquently states: "That the academic results achieved here are out of all proportion to the

meagreness of our resources is familiar to everyone acquainted with universities; but equally it is obvious that no amount of enthusiasm or ingenuity can overcome the very grave handicap from which Queen's students suffer in the lack of provision for teaching, equipment, and research." It is pointed out that in almost all departments there is a paucity of lecturers and other junior staff which severely limits the teaching and the extent of individual attention available to students; several principal subjects either lack a professorship or are unrepresented altogether. It is to be hoped that the aims of the Appeal Committee will be reached, and that a generous response from all old Queen's men will be forthcoming to meet a call which should find a ready response from those who owe their present position to their alma mater.

Ulster Medical Society

One of the most successful sessions of the Ulster Medical Society, over which Professor W. W. D. Thomson has presided, is drawing to a close. The president's opening address on "Some Aspects of the Life and Times of Sir Hans Sloane," to which reference was made in these columns on February 12 (p. 349), was a masterly presentation of a subject which has not hitherto attracted the attention it deserved. An outstanding meeting of the session was the Robert Campbell Memorial Oration delivered by Dr. Leonard Colebrook, who took for his subject "The Control of Infections due to Haemolytic Streptococci." Dr. Colebrook gave an appreciative audience an account of the present position in this important field of medical interest and research, and his paper was published as a supplement in the *Ulster Medical Journal* (1938, **7**, 1). At the conclusion of the meeting Sir Thomas Houston presented the orator with the Robert Campbell Medal. Other papers contributed were of general and special interest and prove that the Society is very much alive to its responsibilities. On February 24 Dr. William Moodie of the London Child Guidance Clinic discussed the working of a child guidance clinic, and on March 3 the penultimate meeting of the session was held in the Institute of Pathology, when the members were the guests of Professor Biggart and his staff to inspect a display of clinico-pathological and pathological material. The manner in which the specimens were set out, with full clinical records and reports, was much appreciated, and the interest shown by the members was a measure of the praise due to the organizers of the meeting. During the past year the Society has lost two of its Honorary Fellows in the persons of Sir Thomas Moore of Dublin and Professor W. St. C. Symmers. Among the names added to the list this year are those of Sir Humphry Rolleston and Sir Robert Johnstone.

Royal Victoria Hospital: Musgrave Clinic

The new paying patients pavilion of the Royal Victoria Hospital, Belfast, which has been opened by the Lord Chief Justice of Northern Ireland, the Right Hon. James Andrews, K.C., owes its existence to a generous benefaction of the late Henry Musgrave, who left the residue of his estate for some necessary extension of the hospital. The trustees felt that a clinic for paying patients of moderate means would meet in every respect the wishes of one who had always given very generously to charitable objects in and around Belfast. The clinic has accommodation for 52 patients (44 single-bed wards and 2 four-bed wards). The operating theatres are lavishly equipped and spacious in size; there is a modern *x*-ray installation and equipment for electrotherapy. Suitable waiting and rest rooms for relatives are provided, and the kitchen appointments leave nothing to be desired. That the clinic will provide a long-felt want and prove popular is shown by the rapid filling up of the rooms; already it is working almost to capacity. Altogether the Royal Victoria Hospital, the Royal Maternity Hospital, and the Musgrave Clinic have about 700 beds, and the fact that they are grouped together in the same grounds as the new Nurses' Homes and the Queen's University Institute of Pathology, forming a colony of medical and surgical treatment and research second to none in its quality and usefulness, adds to the sense of pride of those who conceived and carried to fruition such an ambitious project.

Medical Research Council of Saorstat Eireann

The Medical Research Council of Saorstat Eireann (whose offices are at 85, Merrion Square, Dublin) has made the following awards: Dr. R. A. Q. O'Meara, whole-time appointment for one year to investigate the experimental production of therapeutic antisera, the work to be carried out in the School of Pathology, Trinity College, Dublin, under the direction of Professor J. W. Bigger. Dr. J. C. Flood, part-time appointment for one year to carry out an investigation of the total body electrolyte, work to be done in the Pharmacological Laboratory, University College, Dublin, under the direction of Professor E. J. Conway. Professor J. H. Biggart, grant-in-aid to purchase special apparatus in connexion with a series of researches to be carried out in the Institute of Pathology, Queen's University, Belfast. Dr. P. C. Bresnihan, grant-in-aid to cover laboratory expenses in connexion with his training in the Pathological Institute, Freiburg, under the direction of Professor Buchner. Miss M. O'Sheehan, grant-in-aid for expenses in connexion with an investigation regarding the isolation and chemical identification of a substance in urine related to vitamin C, the work to be carried out in the Department of Pathology, University College, Cork, under the direction of Professor J. Reilly. Dr. J. D. H. Widdess, grant-in-aid to enable him to receive a short period of training from Professor J. H. Biggart, Institute of Pathology, Queen's University, Belfast, in connexion with an investigation of the pathogenesis of diabetes insipidus.

SCOTLAND

Treatment of Mental Disorder

At the annual meeting on February 28 of the Royal Edinburgh Hospital for Mental and Nervous Disorders Professor D. K. Henderson, physician-superintendent of the institution, presented his annual report, in which he discussed mental health policy. He said that the managers of the Royal Infirmary, Edinburgh, had co-operated in providing facilities for a psychiatric clinic and a child guidance clinic in their medical out-patient department. The essential aim of the child guidance clinic was to provide help for those children who found it difficult to adjust themselves to the home, the school, or social life in general. The majority of such children reached a high intellectual standard, and the problem they presented was quite different from that of the subnormal or retarded child. With regard to a mental health policy, the attention of the public should be directed to the broader issues of psychiatric work. The method of approach to mental illness was now to correlate the symptoms with the whole life-history of the patient and all the forces which had played a part in moulding his personality. Naturally, the earlier a patient placed himself under treatment and the more understanding he was the better would be the results. One great difficulty was that nervous people disliked admitting that they were ill, and regarded themselves as failures and incompetents. It was important that the patient should realize there was nothing to be ashamed of and no reason why he should not be able to resume ordinary life. Physical and mental health could not be separated, for one was dependent on the other, and a recognition of this was now leading to much closer work between physicians and psychiatrists. In recent years the clergy and other lay persons who might have excellent academic qualifications were tending to invade the

psychiatric field, and this was likely to perpetuate the schism between the physical and the mental which medical men had been endeavouring to bridge. Medicine needed the help of every intelligent person interested in the problems of human betterment, but it was the physician alone who realized the complexities of treatment for highly charged emotional disorders. Civilized people could not be divided arbitrarily into the sane and the insane, for between these groups there were a large number who were unable to adapt themselves to ordinary social life. Prison methods had little reformatory influence, and, moreover, such cases did not fit into the regime of a mental hospital. The disorder of conduct had been present from early childhood, shown by lack of altruistic feeling, moral blindness, or selfishness. These cases were very important for three reasons: first, because they were very numerous; secondly, because they were the most disruptive element in society; and, thirdly, because there was no adequate provision for them. The problem of treating them was far too big for psychiatry alone, and was closely bound up with public health, social welfare, and education throughout life. It was necessary for their treatment that a more positive health policy and more positive health laws, of which education was a fundamental part, should be developed rather than lunacy laws.

Some Problems in Glasgow

Professor J. W. M'Nee, presiding at the annual meeting of the Royal Mental Hospital, Glasgow, on February 25, said that this hospital, originally founded as a charitable institution, had undergone great changes to meet altering circumstances, and was now essentially a pay-bed hospital, its income being derived partly from accumulated funds but mainly from the fees paid by patients for treatment and maintenance. All the income, however, was devoted to the hospital itself, and it was governed by a voluntary body of citizens of goodwill. Psychological medicine was merely a specialized branch of general medicine. Students in Glasgow were adequately trained to deal with psychoses, but in general practice psychological disturbances not amounting to certifiable insanity were far commoner than frank psychoses and bulked more and more in ordinary practice. Of necessity the mental hospital was almost entirely filled with cases of real psychoses, and therefore provision must be made for teaching students the minor psychological diseases and their treatment, which they would have to carry out mainly themselves. For this reason a clinic was held once a week at the Western Infirmary. The speaker believed that many of the out-patients seen at this clinic should be admitted for treatment, and they would go willingly into wards attached to an ordinary general hospital when they would not be willing to go into a mental hospital. The report of Dr. Macniven, physician-superintendent, emphasizes the fact that during the past year there was considerable difficulty in maintaining an adequate staff of female nurses in the hospital, particularly because of the necessity for increasing the staff in order to introduce shorter working hours. It was found that since 1913 from one-quarter to one-half of the nurses who entered the service failed to complete their three years' training, and this did not make for efficiency. The fact that the mental nurse was regarded as holding a lower status in the profession than the general trained nurse was one reason why mental nursing was not more popular. The remedy appeared to be to introduce a comprehensive training for all nurses which would include mental nursing as part of the curriculum. Even a short period in the wards of a mental hospital would give the general trained nurse a better orientation in her work. The necessity for a pension scheme applicable to all classes of nurses was obvious, and the absence of an interchangeable pension scheme in royal mental hospitals placed these in an unfavourable position for recruitment of nurses.

Vital Statistics of Scotland

The supplementary return of the Registrar-General of Scotland for the year 1937 is included with the quarterly return for the last quarter of that year. The return shows that the birth rate for the year of 17.6 per 1,000 was with one exception the lowest yet recorded for Scotland. The death rate was 13.9 per 1,000, being 0.5 higher than in the previous year. Maternal mortality showed a marked decline, being only 4.8 per 1,000 live births as against 5.6 in 1936. The total number of births during the year was 87,812, and the deaths from all causes 68,942. Deaths of children under 1 year numbered 7,050, giving an infantile mortality rate of 80.3 per 1,000, or 2.0 below that for the previous year. There were 2,693 deaths from influenza, this being the highest recorded for any year since 1929, when there were 3,435 deaths from this cause. All forms of tuberculosis accounted for 3,663 deaths, the rate being 74 per 100,000; the rate for the respiratory form of the disease was 56, or 1 more than in the previous year. For the first time in the last ten years the deaths from malignant disease were fewer than in the preceding year, the number being 7,811 as against 7,909, and the death rate 157 per 100,000. The number of deaths certified as due to heart disease continued to increase—14,358 as compared with 13,698 in 1936; the recent increases were attributed to more definite specification of the cause of death.

Aberdeen University

Aberdeen University Court, at a meeting on March 8, accepted the resignation of Professor Alexander Low from the chair of anatomy on September 30 next. Professor Low graduated M.A. at Aberdeen in 1891, and M.B., C.M. in 1894, taking the M.D. in 1912. He became an assistant in the anatomy department at Aberdeen immediately after qualifying, and was later appointed reader in embryology. He succeeded Professor R. W. Reid in the chair of anatomy in 1925.

Dr. James William Howie, M.B., Ch.B., was appointed the first lecturer in bacteriology in the university. He has been assistant in bacteriology in Glasgow University and assistant pathologist to the Western Infirmary.

At the same meeting intimation was made of a gift to the university from Sir Ian Forbes Leith of Fyvie Castle, consisting of the library of Professor John Gregory, who was professor of medicine at Aberdeen, and later at Edinburgh, about the middle of the eighteenth century. The library includes over 2,000 volumes.

FRANCE

[From Our Correspondent in Paris]

Significant Trends in French Medicine

This year's president of the French Academy of Medicine, Professor F. Bezançon, devoted the greater part of his opening presidential address to a discussion of the most significant trends in French medicine to-day. He joined issue with those foreigners who see in French medicine a slave-like attachment to clinical teaching based on the traditions of the great masters of the past to the exclusion of a sufficient share of technical science. This estimate, in Professor Bezançon's opinion, does French medicine injustice. Clinical research, he said in effect, is, at its best, science of a very high order, and has yielded epoch-making discoveries which the laboratory may confirm but did not originate. The modern science of endocrinology, for example, is entirely derived from clinical observation. As for the future, it undoubtedly belongs to clinical specialization allied to scientific methods. "We must seek more and more to be men of science, well grounded in science and, above all, trying to acquire the scientific

spirit, but we must continue first of all to retain a thorough clinical education, and let us remember that this is not to be found in laboratories and lecture halls but in the hospital and in practice out in the world. . . . With us bedside observation and intern service in hospital are at the root of French medicine."

Conseil Supérieur d'Hygiène Sociale

M. Rucart, the Minister of Public Health, issued early this year a decree which embodies in a single central council all the commissions, associations, etc., which have hitherto concerned themselves with various aspects of social health and welfare. Among the organizations labelled as "suppressed" by a stroke of M. Rucart's pen are such important bodies as the Cancer Commission, the Permanent Rheumatism Commission, and the Tuberculosis Commission. The new central body is to consist of seven commissions, the first three of which will be exclusively concerned with tuberculosis, venereal disease, and cancer respectively. The importance attached to rheumatism as a social problem is indicated by the creation of a commission devoted solely to this subject. Another commission will be concerned with the problems of nurses and social service workers. Documentation and propaganda share a commission between them, and there is to be one for health and social co-ordination and the maintenance of contacts with the national insurance services. If it is not too unwieldy this new central body ought to be able to act with more administrative efficiency than the individual organizations it has replaced.

Professor Leroux's New Appointment

When Professor Roussy accepted the appointment of Rector of the Academy of Paris he resigned his professorship of pathological anatomy. The vacancy thus created has been filled by Professor Leroux, who has served under Professor Roussy since 1919 in various capacities. Since 1926 he has been subdirector of the Cancer Institute, with which Professor Roussy has been so closely associated. Professor Leroux's most recent work in the field of pathological anatomy has been concerned with malignant disease.

Control of Sera and Vaccines by the Academy of Medicine

The supervision of the production of sera and vaccines by a special commission of the Academy of Medicine has hitherto provided a valuable check on manufacturers tempted to err from the narrow path of commercial rectitude. But this supervision has naturally entailed the employment and payment of a highly technical staff, and when the Academy recently made application for funds to increase this staff the Government, represented by the Minister of Finance, refused the wherewithal. The Academy's response to this ill-advised economy is a note addressed to the Minister of Public Health, in which it states that it will henceforth be unable to examine any new preparation submitted to it.

Professor René Leriche at the Collège de France

The appointment of René Leriche of Strasbourg to the professorship at the Collège de France in succession to Charles Nicolle is a most popular one, and when the new-comer was to give his opening address in Paris the other day a large part of his would-be audience formed a queue reaching well out into the street. It is, of course, difficult to decide how much the remarkable hold Leriche has on the medical world to-day depends on his personality and how much on the solid gains he has achieved in the surgery of pain and of the endocrine glands. His operations on the sympathetic nervous system would alone qualify him for a high place in the history of medicine, and it may be truthfully said of him that while his hands are the hands of a surgeon, his brain is that of a physician thinking in terms of physiology. The Collège de France, with which he will henceforth be associated, was founded in 1530 by François I. The first reader in medicine was a Florentine, Vidius Vidi, who was invited by François I to Paris. His successor was Jacques Sylvius of Amiens. During the French Revolution the Collège de France was the only teaching institution allowed to continue its activities, although several of its professors were imprisoned. More recently the Collège was honoured by its association with such names as Laënnec, Magendie, Claude Bernard, Brown-Séquard, and d'Arsonval, the latter now living in remarkably active retirement.

Correspondence

Effect of X Rays on Hereditary Mutation

SIR,—In the *British Medical Journal* of February 19 Dr. Louisa Martindale, after alluding to the discussion of the Sections of Radiology and of Obstetrics of the Royal Society of Medicine reported in your number of January 29, put forward the suggestion that *x*-ray treatment might provide a convenient method of temporary sterilization which could with advantage be used as a technique of contraception. She made no reference to the effect of *x* rays on hereditary mutation, and this aspect of the matter was not touched on in the meeting referred to. Dr. M. Donaldson, indeed, did suggest the need for caution in applying *x* rays to germinal tissue until it is quite certain that this leads to no harmful results in the offspring. The danger, however, is more insidious. We know that a dose of 30 *r* units doubles the mutation rate in Drosophila,[1] and the effect in mice seems to be of the same order of magnitude.[2] The effect in man[3] may perhaps be somewhat lower, since the spontaneous mutation rate of the haemophilia gene, which is the only human one for which we have any data, is about 100 times less, in terms of the number of mutations per year, than is usual in Drosophila.[4] But we do not yet know how closely the rate of *x*-ray-induced mutation is correlated with the spontaneous mutation rate, and it is unsafe to assume that *x* rays have 100 times less effect on man. Even if this were so the effect of the commonly used doses would not be negligible on the mutation rate in the individual concerned.

Most of the mutated genes are likely to be recessive, so that they will not be manifested until two individuals each containing the same mutated gene come together in mating. The immediate offspring of a rayed individual are therefore very unlikely to show the harmful hereditary factors which they contain. Indeed, in an organism like man it will probably always be impossible to measure the change in mutation frequency caused by *x* rays with the accuracy which can be obtained by special breeding methods in Drosophila. But the mutated genes, however difficult to

[1] H. J. Muller, *Science of Radiology*, 1934; N. W. Timofeef-Ressovsky, *Experimentelle Mutationsforschung*, Dresden, 1937.

[2] G. D. Snell, *Genetics*, 1935, **20**.

[3] The question of dosage in man has recently been discussed in a paper which is not available to me in Cambridge: A. Pickhan, Welche Strahlendosen dürfen bei der Röntgendiagnostik der weiblichen Zeugungsorgane nach der Ergebnissen der experimentelle Strahlengenetik in erbbiologischen Sinne als unschädlich betrachtet werden? *Forschr. Röntgenstr.*, 1936, **53**.

[4] J. B. S. Haldane, *J. Genetics*, 1935, **31**.

detect, will be handed on by a rayed individual to his offspring, and will form part of the general germinal stock of mankind. Most of them, according to our experience of other organisms, may be expected to be deleterious. Many will be "lethals," whose effect is to cause early, often intra-uterine, death; but these are perhaps not so dangerous as the even larger class whose only effect is a slight lowering of viability.[5]

There are two further points which are of importance. First, the effects of successive doses of *x* rays are simply cumulative; two doses of one unit have the same effect on mutation as one dose of two units. Secondly, mutation may occur in cells at any stage of development and not only in mature gametes, so that after a period of temporary sterilization the newly formed gametes are liable to be affected, though it is probable that those with the strongest lethal effects are at least partially eliminated by cellular selection.[6]

The frequency of occurrence of individuals showing a deleterious condition determined by a rare recessive gene is simply related to the mutation rate of the gene in the population and the effective fertility of the affected individuals; if the condition is due to an autosomal recessive and leads to death before breeding, the frequency of occurrence is half the mutation rate per life cycle. Thus any increase in mutation rate will eventually lead to an increased incidence of the pathological condition in the population. It is, however, the mutation rate within the whole population with which we are concerned, and from the point of view of human biology the important thing is not the *x*-ray dose given to single individuals but the total quantity of radiation applied to the whole population. A single individual in England contributes only about one fifty-millionth part of the germinal store of the next generation, and a doubling of the mutation rate within this fraction may legitimately be considered of minor importance. If *x*-ray treatment were applied to the greater part of the population the situation would be quite different, and a serious deterioration of the human material might be expected.—I am, etc.,

Strangeways Research Laboratory, Cambridge, March 7. C. H. WADDINGTON.

After-effects of Modern Treatment of Carcinoma

SIR,—I feel inclined to agree with Mr. James Phillips (*Journal*, March 5, p. 538).

A few years ago I attended a patient who was suffering from bilateral endotheliomata of the inguinal lymph nodes. He was in hospital on several occasions. No operative removal was attempted beyond what was necessary for pathological examination. At intervals when he was allowed home he felt well, apart from inguinal discomfort and pains on lying down, and he was able to do a fair amount of manual work. During his last stay in hospital he received *x*-ray therapy. The growths started to slough shortly after he returned home; within three weeks all that remained were foul craters with indurated borders. The disappearance was almost miraculous, as if some selective corrosive had been applied. Severe loss of flesh coincided with the destruction of the growths. It is unnecessary to say that he partook of his normal foods.

What struck me most in this case was the local malignancy but complete absence of metastases. The sloughing affected the growths very uniformly and left the surrounding tissues, even the blood vessels, severely alone. The loss of flesh after *x*-ray therapy may have been caused in several ways: (*a*) by absorption of toxic products from destruction of the growths; (*b*) by secondary infection (this patient was apyrexial during the whole period and even the surrounding tissues appeared to be free from secondary inflammation); (*c*) it may have been a coincidence; and (*d*) the *x*-ray therapy, as suggested by Mr. James Phillips, may have been at fault. I think this last is the most probable.—I am, etc.,

Dalmellington, Ayrshire, March 7. E. S. LEE.

SIR,—I think Mr. James Phillips's dismay at the lamentable results of *x*-ray treatment of malignant tumours (*Journal*, March 5, p. 538) is not unusual, although not so painful as in Mr. Percy Furnivall's case (February 26, p. 450). My personal experience may be of interest.

I am 77 years of age, weigh 10 to 11 st., of which I have lost a stone, and have always had good health. Even now my general condition is good; I can read, smoke, and sleep well when allowed. In January, 1936, cancer of the rectum was diagnosed, the growth being about the size of a guinea-fowl's egg. I went to London and, owing to my antipathy to colostomy, I was put under deep *x*-ray therapy for three months. I had thirty applications, which did not cause much inconvenience. At the end of this time the size of the growth had been reduced by half. I was at home for a fortnight, then went up again, but took the precaution of being cystoscoped before I underwent the radium treatment. The urethra was found healthy and the prostate slightly enlarged.

On May 11, 1936, I had radon seeds in the rectum for twenty-five hours in two nights, the radon seeds being in an inflated rubber bag. I was sent home and warned that the reaction would take place in a fortnight. It did. On May 23 proctitis began and still persists, with a profuse purulent discharge. In July signs of obstruction appeared, and early in September I was digitally examined and a stricture was found half-way up the rectum. On September 22 I had a colostomy performed. The growth had disappeared and only a fibrous band was left. I went home, and had a nurse who "washed me out" on alternate days. I was able to get up for lunch, rested, and then retired at 6.30 p.m. This went on until August 31, 1937, when there was a serous discharge from the colostomy opening of the upper part of the rectum, which did not appear to have been involved previously. At the same time a perforation took place between the rectum and bladder, which had been painful, with difficult micturition, for some time. Almost all the urine is passed per rectum, and since I have been bedridden the serous discharge has persisted until early March, when, I presume, the hour-glass stricture relaxed and allowed the discharge to percolate into the lower chamber; now the rectal sphincter has started leaking, which makes the dressings wet.

The sum of it all is that the treatment with radium has arrested the growth, but has so damaged the pelvic viscera that there is little hope of tolerable comfort for my few remaining years.—I am, etc.,

Wimborne, March 12. WILLIAM GOSSE, M.D.

SIR,—I fear the account of Mr. Percy Furnivall's unfortunate experience after treatment by radiotherapy (February 26, p. 450) will give an unbalanced impression of modern results, unless in all fairness more evidence in a contrary sense can be stated. I therefore ask your leave to give a brief account of an elderly private patient, with a lesion apparently similar, who has given me a personal description of the after-effects of deep *x*-ray therapy in her own case.

The patient, a lady now aged 85 years, was seen originally by me in August, 1936, and gave a history of six months' duration. The diagnosis of epithelioma of the tonsil was confirmed by biopsy. I referred her for treatment to Dr. Gwen Hilton, radiotherapist to University College Hospital. She attended the hospital daily from a hotel near by. The general disturbance of hotel life as compared with home life,

[5] N. W. Timofeef-Ressovsky, *Nachr. Ges. Wiss. Gött.*, 1935, N.F., Bd. 1.
[6] —— *Biol. Zentralbl.*, 1937, Bd. 57.

together with the fatigue of fifty visits, was her chief trouble during the treatment. The pain in her throat before treatment was noteworthy, but it diminished after the first week. Her main complaint was dryness of the mouth, which persisted for over a year but is now considerably less. Her weight at the beginning of treatment on August 31 was 11 st. 1 lb., and at the end, in spite of an attack of influenza, had only fallen to 10 st. 9 lb. She has now returned to her original weight, and there is nothing abnormal to be found in her throat save some glazing of the mucosa of the pharynx. The skin of her neck is supple and free from any telangiectasis.

She tells me that she had no pain during the course of the treatment or afterwards, and that her eating and drinking were never seriously interfered with. After she recovered from the influenza her general condition improved rapidly, and she has been active beyond her years, even nursing her family. She is most explicit in her statement that the treatment was worth while.

The difference in response in these two cases has probably some technical explanation, but the point I wish to make is that the distressing symptoms which Mr. Furnivall has suffered are not a necessary sequence of the modern treatment of pharyngeal carcinoma by radiotherapy.—I am, etc.,

London, W.1, March 12. D. J. COLLIER.

SIR,—Dr. J. H. Douglas Webster (March 12, p. 588) appears to think that I have been making an attack on ray therapy. My letter was an appeal for information as to whether any experimental work had been done on the effects of radiation on normal tissues. As Mr. Percy Furnivall states, there is much uneasiness regarding the far from infrequent disastrous after-effects on general well-being of ray treatment—either by *x* rays or by radium. Dr. Webster admits having such cases after the use of radium needles, and therefore he now suggests treatment by repeated doses of beam radiation.

I venture to inquire whether it would not be wiser to try to discover by experiments on animals the least harmful method of applying *x* rays, rather than trusting to arrive at a decision by the trial-and-error method on human beings. Won't one of the cancer research departments take this inquiry up?—I am, etc.,

Bradford, March 12. JAMES PHILLIPS.

Co-operation

SIR,—The tone of the discussion in your columns on the securing of co-operation between a medical officer of health and the general practitioners in his area suggests that your readers might be interested to learn of the working of a co-ordinating committee, on the lines suggested, in a small borough.

The Accrington committee came into being as an *ad hoc* body, to discuss with the M.O.H. a matter of procedure, in November, 1936. After the amicable settlement of the point at issue the committee remained as a standing co-ordinating body, which did not propose to hold regular meetings, but which was available whenever either party desired to approach the other regarding matters of common interest. It has recently been of the utmost value in aiding the preparation of a diphtheria immunization scheme, and I am convinced that, while the occasions for its use are unlikely to be many or frequent, its existence is none the less of very considerable value. It is not to be expected that a medical officer of health and the private practitioners of his area will invariably agree, but even if the M.O.H. and the committee, in the classical phrase, merely "agree to differ," the fact that the matter has been discussed in this fashion will produce a happier disagreement than might otherwise have occurred. Moreover, the feeling of confidence engendered by the committee's existence will probably render both parties less liable to magnify a trivial difference into a major grievance.

The value of the committee in times of epidemics will be comparatively small. Action and communication must be prompt, decisive, and direct; and the use of an intermediary for communication would give rise to undesirable delay. So far, at least, as administrative epidemiology is concerned, when epidemic disease is present the M.O.H. must necessarily be autocratic, but, of course, his "declaration of martial law" will be more effective and more easily acquiesced in if relations in time of epidemiological peace are on a democratic basis.

It should be sufficient for the committee to be recognized by the general practitioners themselves and by the M.O.H. without the formal recognition of the town council being sought. The latter might, in fact, prove a disadvantage, since the M.O.H. is the official adviser of the local authority in health matters, and that authority cannot well acknowledge the guidance of any other person or body. Official recognition of the committee might, quite possibly, lead to the ventilation of the committee's disagreements in open council, with the consequent risk of destroying any harmony previously established.

A further attempt at the securing of co-operation has recently been made in this area by the issue of a monthly bulletin to all general practitioners in the area. This bulletin gives an abstract of the borough's vital statistics for the previous month, together with such matters as the number of cases of certain non-notifiable diseases reported from schools and any other figures of interest. In addition it contains notes on any points to which I wish to call the attention of the practitioners (unusual clinical types of infectious disease, modifications in the local health services, etc.), and a brief extract of any Ministerial circulars or other topical publications which may be of interest. While it is possible to be sceptical about the practical value of such a publication, there is every reason to believe that in this area the bulletin is being generally appreciated. At any rate, it removes the reproach, too often heard, that the Public Health Department keeps itself to itself.—I am, etc.,

JOHN D. KERSHAW,
Accrington, March 7. Medical Officer of Health.

Scapulo-humeral Periarthritis

SIR,—Dr. F. G. Thomson (*Journal*, March 12, p. 589) advances powerful reasons why mobilization of the shoulders without careful selection in cases of scapulo-humeral periarthritis may make the pain and limitation of movement worse. On the other hand, Dr. A. H. Douthwaite's technique and after-treatment for stiff and painful shoulder-joints (February 26, p. 441) yields in his hands a high percentage of successful results. There is nothing more difficult to decide than the type of case in which and the moment at which mobilization should be recommended and carried out. I have endeavoured to provide myself with certain guiding rules.

1. If pressure at, or near, the roots of the brachial plexus radiates pain into the shoulder-joint then the shoulder is not ready for mobilization.

2. If when the arm is abducted, the scapula being fixed as far as possible, pain is felt in the axilla and spreads over the shoulder, this shoulder also is not ready for mobilization.

3. If, however, pain is felt at one place only, and tends merely to increase at this place, then the shoulder will

benefit from mobilization and after-treatment on the lines described by Dr. Douthwaite.

4. If the pain and limitation of movement are due to either synovitis of the long head of the biceps or to subdeltoid bursitis, mobilization will be ineffective, and is certain to increase the limitation of movement and the discomfort. These conditions require other treatment.

Finally, if during mobilization the "snaps" described by Dr. Douthwaite occur, his technique will yield excellent results. But if on beginning mobilization a sort of "tearing of wet wash-leather" feeling is experienced further stretching of the joint capsule should be abandoned, subsequent mobilizations being undertaken if necessary, otherwise the "exudation of serum or blood with inflammatory reaction likely to set up more fibrosis and so retard rather than hasten the patient's ultimate recovery," as pointed out by Dr. Thomson, is likely to occur.—I am, etc.,

London, W.1, March 13. C. B. HEALD.

SIR,—Dr. F. G. Thomson in his letter to-day raises several points of criticism of my recent article on this subject. His mention of fracture of the humerus resulting from manipulation is as irrelevant as if I had condemned diathermy on the grounds that it might cause a burn. In both cases the fault would lie with the operator and not with the method. Dr. Thomson writes that the tearing of adhesions results in the exudation of serum or blood with inflammatory reaction likely to set up more fibrosis and so retard the patient's ultimate recovery. The fact, however, remains that in every one of my cases restoration of movement was obtained and maintained, and complete recovery has been recorded by the patients' doctors in thirty-five out of thirty-seven cases.

Dr. Thomson takes exception to my statement that the treatment of this condition by *x* rays, baths, and dieting is futile and a waste of time, and declares that the cases respond quite well to balneological treatment, *including manipulation in a pool bath.* Dr. Thomson is either writing of a condition quite different from that which I described, or his happy experiences must be limited to the early stages of the disease, which should be treated, as I have already written, by rest, heat, and later by massage.

To suggest that the diffuse periarticular fibrositis with adhesions requiring considerable force for their rupture (I am using Dr. Thomson's description) can be cured by balneology can only indicate a failure to visualize the actual state which these words describe. It is true that with baths, heat, massage, and gentle manipulation a temporary improvement can be obtained, presumably as the result of stretching adhesions, but within a few weeks of return from Bath or other spa the condition is as bad as ever. When I tell Dr. Thomson that eighteen of my patients had been treated by the very methods he advocates, twelve of these having been at Bath, he will appreciate my reasons for scepticism in relation to balneological treatment of scapulo-humeral periarthritis as opposed to simple fibrositis of the shoulder girdle, with which perhaps he has confused it.

Mr. St. J. D. Buxton (March 12, p. 589) quite rightly assumes that I had no intention of giving a detailed description of the necessary manipulative technique. In point of fact, the essential thing to remember is that the shoulder-joint should be put through all its normal movements, though not necessarily at one sitting. I have not experienced difficulty in fixing the scapula hitherto, but shall certainly bear in mind Mr. Buxton's suggestions.—I am, etc.,

London, W.1, March 12. A. H. DOUTHWAITE.

Undulant Fever in Malta

SIR,—Dr. J. E. H. Gatt's article on undulant fever in Malta (*Journal*, February 26, p. 454) contains certain statements which cannot be allowed to pass unchallenged. In the first place, the average duration of the infection is nearer three months than six, according to an analysis made by Hughes and myself of 1,000 consecutive cases from the records of the Central Civil Hospital. A duration of three years is most exceptional. As a rule there is a marked leucopenia and not a leucocytosis, and in fact this is a diagnostic feature. The mononuclears are not affected in any way, but there is a slight relative mononucleosis and a more pronounced relative lymphocytosis, since the reduction in the number of leucocytes is mainly at the expense of the polymorphonuclear cells. Perhaps Dr. Gatt uses "mononuclears" as synonymous with "lymphocytes" when he refers to a mononucleosis of 50 per cent. Dr. Gatt also mentions the frequency of tuberculosis as a secondary infection; this belief is widely prevalent in Malta, but it has no scientific foundation. The previous incidence of undulant fever in one hundred cases of pulmonary tuberculosis was no higher than in another one hundred unselected cases, and although I am particularly interested in both diseases I cannot recall a single instance in which the development of tuberculosis was influenced by undulant fever. The myth arose from the close similarity between the two infections. A subfebrile temperature with no physical signs in the chest is often diagnosed as "clinically undulant fever" until the signs appear, when it becomes "post-undulant tuberculosis."

With regard to treatment, vaccines in the ordinary sense—that is, particulate bacterial vaccines—have been repeatedly proved to be not only ineffective but positively harmful. There was a time when a filtrate—melitin or brucellin—appeared to have an almost specific effect, but extended experience with this method of treatment has shaken my faith in its efficiency. We know so little about the immunology of undulant fever that our crude attempts at specific therapy may do more harm than good. The intradermal injection of melitin and of *Br. abortus* emulsions in goats as a diagnostic measure has been tried at the Brucella Research Station in Malta, but the method has been found to be unreliable, inconvenient, and inferior to the agglutination reaction carried out by Huddleson's rapid method.

It is difficult to understand the possible use of "the preventive vaccine with live, non-virulent organisms . . . for infected animals" to which Dr. Gatt refers. If the animals are already infected, what is the use of prevention? The use of a live vaccine as a prophylactic measure is open to many objections, which cannot be discussed here, but I believe that the Ministry of Agriculture in England is opposed to its employment. In Malta a large-scale experiment is being carried out on the possibility of immunizing goats by the injection of a filtrate of autolysed bacteria. The results should be available in from six to nine months, and whether the method proves to be successful or not much valuable information will have been obtained on the immunology of this most interesting but most elusive of infections. The slight misstatements which I have attempted to correct do not detract from the value of Dr. Gatt's paper; but it is important to draw attention to them now, as otherwise they might be copied and recopied and in time would acquire vested rights.—I am, etc.,

J. E. DEBONO,
Member of the Undulant Fever Research Committee.

Malta, March 1.

Appendicitis in Tristan da Cunha

SIR,—I have read with great interest the article by Dr. A. M. Spencer on the aetiology of acute appendicitis in the *Journal* of January 29 (p. 227). There is, however, one small point to which I should like to draw attention.

Dr. Spencer says: "The disease is also very common among the inhabitants of Tristan da Cunha, who live on an exceptionally low cellulose diet owing to the impossibility of growing cereals on the island." Tristan da Cunha has now been inhabited for over a hundred years and earlier medical history is scanty. During this century, however, it has been visited on numerous occasions by ships of the Royal Navy. Since the war a systematic examination of all the islanders has been done on three occasions. I myself was present at the last of these. Medical notes have also been made by the doctors of exploring expeditions and the resident missionaries. Several of the latter have published books of reminiscences, and make no reference to appendicitis, a disease which is well recognized by laymen. The register of deaths is not very accurate, especially as regards diagnosis, as the islanders keep it themselves during the periods when there is no missionary. I have been able to find no record of a death from anything resembling peritonitis, and there is no record of any laparotomy ever having been performed. In the report of the medical examination in 1932 the senior medical officer stated: "One man showed symptoms which might have been due to chronic appendicitis. He was advised to leave the island and be operated upon." He did not act on this advice, and when seen by me at the next examination five years later was alive and well and had no complaints.

During the examination of 1937 I formed the opinion that the physique of the islanders was vastly superior to that of the "civilized" world. There were no complaints or signs of anything resembling appendicitis. The only abdominal pain complained of appeared to be a seasonal gastro-enteritis, which coincided with the sea-bird egg season. At this time the islanders are accustomed to have not one "egg to their tea," but many. It would hardly seem accurate, therefore, to say that appendicitis is very common in a community in which there has never been a death from peritonitis, never been an operation for appendicitis, never been any complaints resembling it (except for the one case quoted above) over a period of more than 100 years.

With regard to the cellulose question, no cereal is grown on the island and potatoes take their place. Adequate and recently increasing supplies of onions, turnips, carrots, leeks, and cabbages are grown and eaten, and as constipation is unknown it would not appear that the islanders are suffering from any serious lack of cellulose.—I am, etc.,

H. E. B. CURJEL,
Surgeon Lieutenant Commander R.N.
Royal Naval Hospital, Simonstown,
South Africa, Feb. 24.

Infantile Pyloric Stenosis

SIR,—Dr. Leonard Findlay states in a letter published in the *Journal* of March 5 (p. 538) that "Mr. David Levi . . . would seem to have overlooked the fact that by the use of eumydrine or other antispasmodic, hospitalization of the infant . . . becomes unnecessary." This I would deny. Svensgaard's original instruction when treating patients with eumydrine was that the child should be rehydrated. He says that the child should be put on subcutaneous salines until diuresis demonstrates that the dehydration has been overcome. Does Dr. Findlay propose carrying out these methods in the out-patient department or at home, or has he a new approach to treatment which he has not yet published? I have yet to meet the physician who treats all cases of pyloric stenosis as out-patients. My medical colleagues tell me that with eumydrine a prolonged period of hospitalization is usually necessary, and I know that this is the general experience. I cannot, of course, speak from my own practical knowledge of this method of treatment as I have never used it, but I have been called to rescue its failures. In the last thirteen weeks I have operated on twenty-eight patients suffering from pyloric stenosis, and in the course of a year I see a very large number of cases.

I have come to the conclusion that no deduction of any moment can be drawn from a small series of cases, such as the six patients quoted by Dr. Findlay. A similar series can be produced to show the value of thickened feeds, or of careful feeding and gastric lavage without any other form of medication. I felt that I had to answer Dr. Findlay's statement on hospitalization, which is inaccurate, but I will pass over his mention of "the radiological findings, which of all the signs of the disease are the most fallacious," as an expression of an opinion which is not universally accepted.—I am, etc.,

London, W.1, March 6. DAVID LEVI, M.S., F.R.C.S.

Diverticulitis of the Caecum

SIR,—I read with interest in the *Journal* of February 26 (p. 475) your summary of the paper on solitary diverticulitis of the caecum, read by Mr. Bennett-Jones to the Liverpool Medical Institution. The fact that he was able to bring four cases of this disease to the notice of the society is evidence that the disease is not so rare as previously recorded cases—seventeen in all—would suggest. Probably there are others like myself who have come across the condition and have omitted to publish their cases.

It will be readily appreciated that when a solitary diverticulum of the caecum becomes inflamed the condition is difficult to distinguish from acute appendicitis.

In July, 1934, I was called urgently to see a doctor, aged 35, suffering from severe abdominal pain. The pain, which had begun the previous day, was at first located in the mid-abdomen and later settled in the right iliac fossa. There was tenderness and rigidity over the lower abdomen, but these signs were most marked in the caecal region. He had been seen by three of his colleagues, and there was little doubt in all our minds about the diagnosis. At operation I found diffuse sero-purulent exudation due to a perforated caecal diverticulum. The diverticulum was situated on the anterior surface of the caecum, close to the ileo-caecal junction, was barely three-quarters of an inch in length, and had perforated near the tip. There was no inflammation of the appendix. Both the diverticulum and the appendix were removed, the abdomen was drained, and the patient made a good recovery.

When perforation of a diverticulum of the caecum is localized by surrounding structures the condition enters on a chronic phase and gives rise to more confusion in diagnosis—for example, appendix abscess, tuberculosis, carcinoma, etc. As Mr. Bennett-Jones remarks, diverticulitis is always considered when disease of the left side of the colon is under consideration, but rarely considered when dealing with the right side. In the light of after-events I am inclined to think that a case with which I had to deal six years ago and which at first was thought to be carcinoma or tuberculosis of the caecum was really one of diverticulitis.

The patient was a female aged 28 whose appendix had been removed a year previously through a small muscle-splitting incision in the right iliac fossa. The operation afforded little

relief and the patient complained of increasing pain and discomfort in the right iliac fossa. When examined, a tumour was discovered in the caecal region, and an *x*-ray film showed a filling defect of the caput caeci. At operation, however, the tumour was located not at the caput but on the inner side of the caecum and seemed to be continuous with a mass of glands which spread up along the ileo-colic artery. There was considerable inflammatory reaction all around the caecum and the ileo-caecal junction. As the patient was frail and poorly nourished it was decided to do the operation in two stages. The ileum was anastomosed to the transverse colon, and two glands were removed for biopsy. Examination of the glands showed no evidence of carcinoma or tuberculosis but only chronic inflammation (Dr. W. W. Woods, London Hospital). There was no further operation. The tumour disappeared and the patient has remained well.

—I am, etc.,

London, W.1, March 15. MICHAEL J. SMYTH.

Excision of the Patella

SIR,—The number of letters I have received since the publication of my recent article (*Journal*, February 19, p. 383) on the treatment of arthritis of the knee and fractures of the patella by removal of the patella prove the great interest taken in this operation. Professor Fawcett of Bristol informs me that a friend of his, the late Dr. Altham of Penrith, some forty years ago excised both patellae from a medical colleague for comminuted fractures which had become infected, and the patient stated afterwards that he was better off than he was before his accident. This case Professor Fawcett believes to have been reported in one of the periodicals of the time. In reply to Mr. H. Jackson Burrows's letter (p. 418), warning against removal of the patella in cases of congenitally displacing patellae, it goes without saying, though I should no doubt have stressed the point in my article, that the alignment of the extensor pull must also be corrected by some form of tenoplastic operation. I think, however, that it is unfair to pour cold water on this operation of removal of the patella, as yet in its early days of trial, on the strength of two cases of this rare condition for which excision was carried out. I have seen hernias recur, but I still advise operation, because in the majority success is attained. The objection that hyperextension is apt to occur is too mythical to controvert. Dr. P. W. Hampton (March 5, p. 539) has forgotten his physiological teaching as regards the reciprocal innervation of muscles; also the crucial ligaments, as every sportsman knows, will take any amount of strain before snapping. In arthritis, where some atrophy of the crucial ligaments may be expected, there is also reflex wasting of the muscles about the joint, so that hyperextension is again unlikely. I am surprised, however, that more correspondents have not commented on what I consider the most important application of this operation of excision of the patella—namely, to relieve the pain in early cases of osteo-arthritis. This, to my mind, is where the future usefulness of this operation lies.

—I am, etc.,

London, W.1, March 7. G. O. TIPPETT.

*** Perhaps the case to which Mr. Tippett refers as being recorded "some forty years ago" is that described by Dr. James Altham of Penrith in the *British Medical Journal* of May 24, 1890, at page 1190. The case was one of a compound comminuted fracture of the patella with avulsion of the ligamentum patellae. The patella was excised, and ten months later "the patient could walk with perfect freedom and confidence, could go up and down stairs as usual, and was able to ride on horseback."—ED., *B.M.J.*

Cause of Chronic Gastric Ulcer

SIR,—The statement I read in a medical journal a short time ago that "the cause of chronic gastric ulceration is still quite unknown" prompts me, rather diffidently, to suggest a cause, and a method of treatment that I have been using in practice with good results for about a year.

When I was a student I was taught that chronic ulceration of all types could be subdivided into tuberculous, syphilitic, varicose, etc., and that treatment depended on the cause. We all know that the ordinary chronic gastric ulcer is not syphilitic and not tuberculous, and is not due to any germ isolated to date; but is there any reason why it should not be regarded as a chronic varicose ulcer?

Thousands of years ago man, struggling upwards in the process of evolution, assumed the erect posture, and since then his heart and blood vessels have had to adapt themselves, often failing in the task, to the fact that there is a natural tendency for the blood to stagnate in dependent areas. So we get varicose ulcers of the legs, which caused so much misery until the genius of Mr. Dickson Wright showed us the proper way to treat them. So we get haemorrhoids—the pull of gravity on the contents of a loaded rectum in the upright position must be considerable. And so is it not feasible that we get a tendency to varicosity of the stomach, no longer resting on the abdominal wall, as in animals, and probably also given far too much work to do in digesting too heavy and unsuitable food?

Once it is admitted that the term "chronic gastric ulcer" means "varicose ulcer of the stomach," a host of minor puzzling points become clear. We see now the comparative failure of the alkaline treatment in its proper perspective—the usual hyperacidity is only secondary to the main cause. We see afresh the overwhelming importance of rest, overshadowing, as we have always known, all other treatment. We understand the obstinacy of these ulcers, their world-wide distribution, and their tendency to bleed. We appreciate the failure of excision to cure them and the comparative failure of gastro-enterostomy. And we see now why an experimental ulcer produced in a dog's stomach never remains chronic but heals quickly as soon as the dog is given its liberty. I leave wiser and more skilled heads than mine to do the same sort of experiments on normal and ulcerated stomachs that Mr. Dickson Wright did on normal and ulcerated legs, but I shall be surprised if they do not show the same extraordinary venous stasis.

The treatment I give my patients on this hypothesis is simple. They are put to bed on the usual milk diet, and the usual alkaline powder given if it agrees, otherwise they get no medicines at all. The foot of the bed is raised by at least six inches, and that is all. It is useless for me to say that the ulcer heals any more quickly under this treatment, as every physician knows how impossible it is to dogmatize, and without the control of *x* rays I am working in the dark. But the results have at least been promising, and I suggest to others to try this simple method, especially on those large ulcers of the lesser curvature that are the despair of physicians and surgeons alike. After-treatment is most important. The foot of the bed should be raised for the rest of the patient's life. At every opportunity the patient should elevate his legs at least to the level of his abdomen. Food should be small in amount but taken often and easily digested.—I am, etc.,

Coxwold, York, March 8. WILLIAM MCKIM.

Acriflavine Emulsion

SIR,—Dr. J. Walker Tomb's letter (*Journal*, January 29, p. 256) describing an alternative formula for acriflavine emulsion raises some interesting points. The formula he suggested was as follows:

Acriflavine *B.P.*	1 gm.
Lime water *B.P.*	500 ml.
Olive oil *B.P.*	500 ml.

Professor L. P. Garrod and Mr. G. L. Keynes, in their article on the use and abuse of antiseptics (December 25, 1937, p. 1286), criticized the *B.P.C.* emulsion in regard to its high oil content. In the light of this criticism the above formula represents an improvement on that of the *B.P.C.* in that it contains less oil and more water. Dr. Walker Tomb mentions the enhanced action of acriflavine in an alkaline medium, and I presume he intends his emulsion to have an alkaline reaction. This will probably be so when using *B.P.* edible olive oil (acid value not more than 2.0), because it can be calculated that the alkalinity of lime water is neutralized by an equal volume of olive oil when the latter has an acid value of approximately 2.5. On the other hand, it should not be forgotten that for external preparations, such as oily liniments, the *B.P.* recognizes olive oils possessing acid values not exceeding 6.0. In view of this some confusion may arise, and it will depend largely upon the choice of oil as to whether the finished emulsion is alkaline, neutral, or acid in reaction. Moreover, if lime water emulsions of acriflavine became popular circumstances might arise when it would be very convenient to keep a "stock" ready made. This would create a further difficulty in the case of the formula under discussion, because such a "stock" mixture would eventually become acid, due to the progressive hydrolysis of the glycerides in the olive oil. May I therefore suggest a modification which would preserve the usefulness of the formula and at the same time free it from the disadvantages described—replace the olive oil by liquid paraffin containing enough oleic acid to form a soap with the calcium hydroxide of the lime water, but leaving an excess of the latter sufficient to give the finished product the desired alkalinity. In this way an emulsion is obtained which is simple to prepare, reasonably stable, and cheap. The formula is as follows:

Acriflavine	0.1 gm.
Solution of calcium hydroxide ...	60 ml.
Oleic acid	0.5 ml.
Liquid paraffin	40 ml.

The lime water, of course, should be freshly prepared. Although the proportion of oil is purposely as small as possible, more than sufficient is present to provide lubrication and to prevent dressings from sticking. The viscosity of the emulsion when made with *B.P.* liquid paraffin is fairly high, and if desired a more mobile and less expensive product can be obtained by using a good-quality oil of lower viscosity, such as is used in the preparation of nebulae for spraying the nose and throat. At this hospital good results have been obtained with an oil of specific gravity 0.850, 50 ml. of which at a temperature of 37.8° C. flow from a Redwood No. 1 viscometer in not less than 70 and not more than 75 seconds. The oil complies also with the limit tests for sulphur compounds and acidity described under the *B.P.* monograph for liquid paraffin. Although there is some tendency for the finished emulsion to separate on standing, homogeneity is quickly and easily re-established by shaking.—I am, etc.,

W. A. WOODARD,
Pharmacist.

Royal Southern Hospital,
Liverpool, March 5.

Raw or Pasteurized Milk

SIR,—The letter of Dr. Bernard Myers (*Journal*, March 5, p. 537), and the evidence he quotes regarding the danger of raw milk and the safety and nutritive value of pasteurized milk, should surely convince even the most complacent as to the urgent necessity for strong action being taken immediately by all those responsible for our milk supplies—including the Government. One of the chief reasons for delay is, I believe, the lack of uniformity of opinion in our hospitals and in the medical profession. Many hospitals provide their patients with ordinary raw milk, which is neither pasteurized nor sterilized by boiling, and they do not buy milk from a tuberculin-tested herd even in localities where such milk is easily obtainable. Many doctors still advise the consumption of raw milk with the object, they say, of developing immunity in the children who drink such milk. Some, the "whole-hoggers," advise all raw milk from the start. "Let the child take its chance," they say; "the sooner it develops immunity the better"—truly a policy of kill, cripple, or cure. Others adopt what they fondly imagine is a more scientific method. They start the child on milk from tuberculin-tested cows, and gradually replace such milk with increasing quantities of ordinary raw milk. One wonders how they estimate the dose of tubercle bacilli—presumably by the pint or half-pint!

In our campaign for pure and safe milk supplies do not let us forget, or fail to draw attention to, the danger of acquiring other diseases from infected milk. Many epidemics of scarlet fever and of typhoid have been traced to infected milk; and what of undulant fever? Many of our herds are infected with *Br. abortus*, the proportion of infected cows varying from 10 up to 50 or 60 per cent. and over. Consider the deaths of children under 2 years from infective enteritis or diarrhoea. According to the figures published in the epidemiology section of the *Journal*, sixty or seventy children are at present dying *weekly* from this disease in the 125 great towns in England and Wales alone. Nothing is more certain than that these figures will be enormously increased in the summer months. I believe I am right in expressing the opinion that many of these deaths and much misery and unhappiness could be prevented were these children to be given sterilized milk.

One word of criticism. Why does Dr. Myers write of "tuberculin-tested milk"? There is no such thing. One often hears milk from tuberculin-tested cows so described, and the designation "tubercle-free milk" is also often used. The tuberculin test is not infallible, and such loose phrases create in the consumer a false confidence and security. The only milk which can be correctly described as "tubercle-free" is that which has passed a thorough bacteriological examination.—I am, etc.,

Dundee, March 5. F. R. BROWN.

Safe Milk and Safe Butter

SIR,—I have been interested in the Association's advertisements and most pleased to see publicity being given to such an important question. It is a pity that the advertisement has not been more carefully prepared. It contains one very grave mistake; it says: "About 2,000 deaths a year in Great Britain are due to bovine tuberculosis, a disease which is carried by unsafe milk." Bovine tuberculosis is caused by unsafe butter as well as by unsafe milk, and as the plea of the advertisement is to purify the milk and not to test the herds, I feel that this paragraph should be altered. Boiling, pasteurizing, etc.,

of milk will not cure the tuberculosis, scarlet fever, and other conditions mentioned in the advertisement; it will not even help appreciably while unsafe butter is allowed to go unnoticed.—I am, etc.,

Merioneth, March 5. EMYR JONES.

Pneumonitis

SIR,—I wonder if the first of those American authors to coin the word "pneumonitis" thought that he was "saying a mouthful" and carrying our knowledge further. This alleged new entity, with ghostly appearances in the *x*-ray film but with no exactly discerned pathological basis, is to be pinned down to earth with what looks like a scientific label. But why not substitute the simpler term "inflammation of the lung"? That would at least discourage the clinician from deluding himself, as he looks at a radiograph darkly, into thinking that now he sees face to face some new disease. "Annotations have appeared in the *Lancet* (1937) and in the *British Medical Journal* (1937)," the article would then read: "and X. and Y. now recognize inflammation of the lung as a separate entity." *Parturiunt montes, nascetur ridiculus mus!* The physician who learns much from radiographs of the lungs can only interpret clinical pictures in terms of *x*-ray appearances if both these have already been integrated with and interpreted by a knowledge of the underlying pathology. Is there some new, hitherto unrecognized pathological process which produces these particular inflammations of the lung?—I am, etc.,

Liverpool, March 8. ROBERT COOPE.

Pure English

SIR,—Dr. D. T. Barry, I think, does well to be dissatisfied with the word "sympathicolytic" (*Journal*, March 5, p. 544). "Sympathicolysis" is a very doubtful formation, but it might possibly be wrested to mean "dissolution of a partner in unnatural vice." It has the advantage of keeping its meaning "veiled," as Gibbon said, "in the obscurity of a learned language"; on the other hand, it comes in queerly under the heading of "Pure English," and, moreover, it is not what Dr. Barry means.

Near it in your correspondence columns occurs that congenital defective "contraception"; as to which it seems to me that if "sympathicolysis" has a meaning, though an unsavoury one, "contraception" has none at all. However, having escaped its appropriate fate of being strangled at birth, "contraception" is, I fear, a monster now too robust to perish. But there is a third specimen of more tender years which is possibly not beyond the resources of orthopaedics—"achresthic anaemia." This type of anaemia is defined as one in which the patient is unable to make use of the anti-anaemic factor, and though ἀχρηστός usually means "incapable of being used," it has a rare active use and may mean "making use of." But why not "achrestic"? Whence the second aspirate? Is the well-known verse quoted by St. Paul responsible—φθείρουσιν ἤθη χρηθ' ὁμιλίαι κακαί, "Evil communications corrupt good manners," where the final τ has received the aspirate from the ὁμιλίαι following it? Is it too much to hope that if there is another edition of Osler's *Principles and Practice of Medicine* "achresthic" may become "achrestic"? Osler had a conscience in these matters, even though he did always spell aneurysm with an "i."

Many years ago a wise man, possibly Sir A. Quiller-Couch, suggested that if the dead languages were lively enough to provide scientific terminology for modern ones that could not, it might be as well for the scientists to consult the scholars before committing themselves to print. In fact we ought to treat the language of Hippocrates with respect; though if he, sitting beneath a ghostly plane tree in the place to which good physicians go, is still conscious of "The Art," he is probably smiling benignly. Galen at any rate could bring him up to date on the second century implications of "pathicus."—I am, etc.,

Barrow-in-Furness, March 7. JOHN WARE.

Correct Footwear

SIR,—Looking into a shoe shop the other day I was struck by the type of some of the ladies' shoes. These had the toe-cap cut away on the medial side so as to expose the (painted) nail of the great toe. It seemed to me that a very slight modification of this fashion might be taken advantage of, and a shoe devised which would allow the great toe to develop in the direction which Nature intended and which in fact is normal in the barefooted races. To attain this object two conditions would be necessary: (1) the great toe would have to be completely exposed on the medial side as far back as the base of the proximal phalanx; and (2) the fashion in this type of shoe would have to be set by persons sufficiently influential to ensure a wide following for it. In respect of the latter, the medical profession, especially the women doctors, might discharge their duty and responsibility to the public and their own sex, as suggested by Dr. Margaret Emslie (*Journal*, March 5, p. 544), by themselves wearing such shoes, though a still more impressive argument might be advanced if the president and members of the British Orthopaedic Association could be induced to set the example! Speaking seriously, if the whole of the great toe could be allowed to grow without restraint in the first ten years of life, during which time the personal factor counts for little, many of the disabling deformities in this region might be avoided.—I am, etc.,

Belfast, March 7. S. T. IRWIN.

Treatment of Plantar Warts

SIR,—The incidence of plantar warts in adolescent school children, mentioned by Dr. R. M. B. MacKenna in the *Journal* of March 5 (p. 509), raises the question of the best and most rapidly effective method of treatment. Treatment by radium and *x* rays both necessitate the services of an expert, and in spite of the advantage of painlessness a very large number of parents would be unable to afford such treatment. In addition, I have seen one case which had received *x*-ray treatment in which the warts were unaffected, though a dermatitis was present. Treatment by local escharotics and keratolytics is very tedious, many applications are necessary, the end point at which treatment should cease is by no means clear, and some sort of dressing is needed throughout, but it has some value in the "seedling" stage. In school practice I consider that excision, or more correctly "curettage," is by far the best and most effective treatment. Dr. MacKenna, in his article, tends rather to condemn the method with faint praise, and states that it may be "attempted" if physicotherapeutic measures are not available. The disadvantages of the method, as he points out, lie in the necessity for either a general anaesthetic or a very painful local anaesthetic injection.

In cases where one or two warts only are present infiltration with 1 per cent. novocain is nearly always possible. Adolescent children, especially girls, are wont to show a remarkable degree of fortitude in regard to these injections. The special pain of puncture and infiltra-

tion is apparently due to the denseness of the tissues concerned, and the sensitiveness of the plantar surface of the sole and toes. The initial injection may be made tolerable by the use of a No. 16 needle with a short bevel, sterilized by boiling in olive oil. The initial puncture is made slowly, injection being started very gently as soon as the bevel is hidden, and continued slowly until the base of the wart and all the area which can be reached through this puncture have been infiltrated. Further punctures are usually painless. Freezing with ethyl chloride before the initial puncture is not advised, since the small operation area is altered in appearance, and many warts are much more appreciable to touch than to sight.

If the warts are multiple, or for some reason local anaesthesia is impossible, a general anaesthetic becomes necessary. In these cases it is advisable to prepare before operation a plan indicating the number and exact position of the warts. Enucleation of the warts with a Volkmann's spoon, or, if small, with a meibomian cyst scoop, if carried out by the method originally described by J. L. Franklin (*Practitioner*, 1932, **129**, 506) will give excellent results, and a local recurrence should be exceptional.

In cases dealt with under local anaesthesia after-pain may be mitigated by filling the wart cavity, after haemostasis has been effected, with anaesthesin, 15 per cent., in ammoniated mercury ointment. After general anaesthesia a light gauze dressing only is necessary. Except in cases of multiple warts, walking may be allowed as soon as it is certain that no reactionary haemorrhage will occur, and school work will not be interrupted for a single day, though games and routine walks should be forbidden till healing is sound. The cavities often heal very rapidly: after local anaesthesia in from ten to fourteen days; after general anaesthesia sometimes in less than a week. There is no special tendency to sepsis.—I am, etc.,

Rustington, Sussex, March 8. W. E. WALLER.

Early Occurrence of High Blood Pressure

SIR,—In her paper on the early occurrence of high blood pressure in coarctation of the aorta (*Journal*, March 12, p. 564) Dr. E. Joan Rooke states that in 1933 the youngest case then on record was a boy of 14 who had coarctation of the aorta and a blood pressure of 150 mm. Hg. If Dr. Rooke will turn to the *Archives of Disease in Childhood* for December, 1929, she will find a full account, together with a description of the partial necropsy, of the case of a child aged 5 which I recorded with F. W. M. Lamb. In our paper there is an account of the study of the systolic blood pressure, which was consistently over 200 mm. on the left side and varied between 175 and 215 mm. on the right. In my case unsuspected diffuse arteriosclerosis was found, which was not limited to the vessels exposed to the high blood pressure. In addition there was a congenital abnormality of the left kidney with diffuse sclerosis. It was not clear what part these changes played in determining the high blood pressure, but inasmuch as the systolic pressure in the popliteal arteries was only 125 mm. it was probably not a great one.—I am, etc.,

Birmingham, March 12. A. P. THOMSON.

SIR,—A statement in the *Journal* of March 12 (p. 564), issued from the Department of Clinical Research of University College Hospital by Miss E. Joan Rooke, seems to be open to criticism. She states that some murmurs heard on both sides of the sternum resulted (*sic*) from enlarged internal mammary arteries. It would be interesting to know what is meant by such a statement. We are given both the "systolic" and "diastolic" pressures in the right arm, but only "the pressure" in the left arm. Was this the "systolic" or the "diastolic"? If it is the "systolic," what was the "diastolic"? The writer tells us that the demonstration of high blood pressure in the child is important because it occurs at a period of life when high pressure from other causes is extremely rare. Is this her experience, or is it given on any authority? My experience, in acute rheumatism especially, is that both the "systolic" and what I call the "basic" pressure are raised before an attack and tend to fall as the attack disappears.—I am, etc.,

Swansea, March 12. G. ARBOUR STEPHENS, M.D.

Iron for Subnutrition

SIR,—Drs. E. Blackstock and J. M. Ritchie, in your issue of March 5 (p. 512), report their observations on a group of anaemic children selected from those attending a welfare centre. The diagnosis in each case was proved by complete blood examination, and there was a satisfactory response to iron therapy. These infants were selected because on clinical examination they were considered anaemic, and it is quite certain that in many centres they would not have had the benefit of treatment. I would emphasize, however, that much iron deficiency is overlooked when full reliance is placed on physical examination. The high incidence of iron deficiency has been stressed by many workers in recent years, and until adequate preventive measures are adopted I would urge that a haemoglobin estimation be carried out on all children attending pre-school centres.—I am, etc.,

London, W.1, March 10. THOMAS COLVER.

George Buckmaster and William Wright

SIR,—The Executive Committee of the Council of the Royal Australasian College of Surgeons is grateful to Mr. Gordon Gordon-Taylor, F.R.C.S., for his expression of the sorrow which is felt in Australia and New Zealand at the death of Professor G. A. Buckmaster, D.M., F.R.C.S., Emeritus Professor of Physiology, University of Bristol. Professor Buckmaster was loved by all those members of the profession in both Australia and New Zealand who were privileged to meet him on the two occasions on which he visited these countries. His visits did much to cement the bonds of unity between the members of the surgical profession in Australia and New Zealand and their brothers in Great Britain.

Similar feelings exist in regard to the late Professor William Wright, who was Professor Buckmaster's colleague as Examiner in Anatomy in Melbourne in 1931. The deaths of these two men are deeply deplored by everybody in Australasia who knew them.—I am, etc.,

H. G. WHEELER,
Secretary, Royal Australasian College of Surgeons.

Melbourne, Feb. 25.

X-Ray Film Developing Box

SIR,—I was pleased to see that Mr. Robert G. W. Ollerenshaw has paid tribute to the use of the *x*-ray film developing box during the operation on fractures of the neck of the femur by the introduction of a Smith-Petersen nail (*Journal*, March 12, p. 569). We orthopaedic surgeons in London are greatly indebted to Mr. D. W. Atkinson, the radiographer, who is, I understand, the inventor of this process of rapid development of the film, thereby very greatly diminishing the total amount of time taken over the operation.—I am, etc.,

B. WHITCHURCH HOWELL, F.R.C.S.

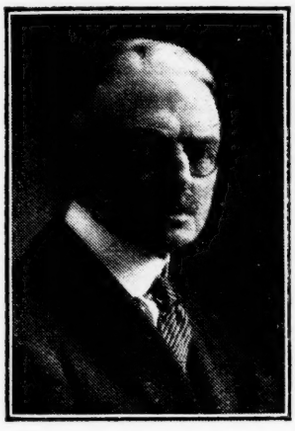
London, W.1, March 13.

Obituary

SIR RAYMOND CRAWFURD, M.D., F.R.C.P.

Consulting Physician, King's College Hospital; Registrar, Royal College of Physicians of London

Sir Raymond Henry Payne Crawfurd, who died on March 9, was born November 9, 1865, the son of the Rev. C. W. Payne Crawfurd of East Grinstead. He was educated at Winchester and New College, Oxford, graduating B.A. in 1889, and in the same year entered the Medical School of King's College Hospital as its Warneford scholar. In the history of "King's" he is described as being by far the most brilliant student of his year, and he was awarded the junior and senior scholarships of the school in 1891 and 1894. He qualified for practice in 1894 with the M.B., Ch.B. of Oxford and the M.R.C.P. diploma. He then held resident posts at King's College Hospital, and after their completion he was appointed assistant physician to the Victoria Hospital for Children and to the Royal Free Hospital, which he served from 1896 to 1908. He lectured on materia medica and pharmacology at the London School of Medicine for Women and on pathology at the Royal Free Hospital.



In 1898 Crawfurd was elected assistant physician at King's College Hospital, and remained in active work there until 1930. In the course of time he became a prominent member of the teaching staff of the medical school, first as lecturer on materia medica and pharmacology, and later in clinical medicine and as director of medical studies. He exercised great influence for the good in the advancement of the hospital and school, and was mainly instrumental in getting the Burney Yeo bequest scholarship in 1914. He was an attractive teacher, and King's College prided itself on one of its pupils gaining the Murchison clinical scholarship—awarded in alternate years by the Royal College of Physicians of London and the Edinburgh University—in four successive examination years, when it was open to competition in London, 1922–8. He wrote many papers for medical literature, Graves's disease especially interesting him and being the subject of his M.D. thesis (1896). He also contributed articles on it to Quain's *Dictionary of Medicine* and to his hospital reports. In 1914, with Sir Farquhar Buzzard, he edited the fifth edition of Burney Yeo's *Manual of Medical Treatment*, its author being too ill to face the task. Buzzard revised the chapters on nervous diseases and Crawfurd the rest. Later editions were called for.

Raymond Crawfurd's first historical work appeared in 1909, and was on the *Last Days of Charles II.* In this he reviewed the eight existing descriptions of the illness by eye-witnesses. One of the most important was that of Sir Charles Scarburgh, physician to the King. The original—in Latin—is in the possession of the Society of Antiquaries, and Crawfurd gives a complete copy of this with a translation. It was prepared by Scarburgh chiefly to combat the rumour that the King had been poisoned. Macaulay and others attributed the death to apoplexy. By an examination of all the reports side by side a striking common line of agreement was to be found in them, and led to the clear conclusion that the final illness was uraemic convulsions brought on by chronic nephritis, probably of gouty origin. Crawfurd's story is a bald statement of facts, confined to the medical aspect of the illness, and it is interesting to read of all the remedies used—bleeding, blistering, pills, and potions. There is also an account of the priest Hudleston's administration of the last rites of the Roman Catholic Church, and of the King's acceptance of its faith.

Crawfurd took an active part in the work of the Royal College of Physicians, of which he became a Fellow in 1901. He delivered the Fitzpatrick Lectures in 1911–12, and the Harveian Oration in 1919. He was one of its examiners and councillor in various years, and became Registrar in 1925. The Fitzpatrick Lectures on "The King's Evil" were published in an ampler form as a book with illustrations of a broadside of the ceremony and office of "healing," issued in 1679; of various kings touching the scrofulous subjects; and of touch-pieces presented to the sufferers from the evil. The term scrofula had various meanings at different times. It was the form of "struma" that affected the neck and enlarged it to look like that of a sow—*scrofa* of Latin writers. Its meaning to-day is uncertain, unless, as Crawfurd says in his preface, we may fall back on the French *mot*: "On devient tuberculeux, mais on nait scrofuleux." It is a handsome presentation of the subject, but like other of his works sadly lacks an index.

The Harveian Oration was on the forerunners of Harvey in antiquity. The orator thought when he came to examine the outstanding accounts of the history of the discovery of the circulation that too little had been conceded to the master minds of antiquity, especially to Aristotle's doctrine of the primacy of the head. He found an interesting parallelism in the lives of Harvey and Aristotle and their court appointments, etc., and he reviews fully Aristotle's work and opinion on the heart and blood vessels. The researches of Erasistratus and Galen are also considered; all in an interesting and as novel a manner as could be expected from about the two hundred and fiftieth Oration. Another historical work published in 1914 was on *Plague and Pestilence in Literature*. The words "and Art" might have been fairly added to the title, for the book contains many reproductions of pictures by various Continental artists of plague-stricken peoples and towns. The Great Plague of London comes in for some descriptions, but there is no illustration of it. The work is more a general than a medical account of plague, and does not deal with anything after the end of the eighteenth century.

Crawfurd took an active and enthusiastic part in the administration of Epsom College, and for several years was chairman of the council of governors. He received the honour of knighthood in 1933 for his distinguished services to medicine.

Sir Raymond Crawfurd had been a member of the British Medical Association since 1897, and at the Centenary Meeting in 1932 he acted as vice-president of the Section of History of Medicine. At the memorial service, held at St. Martin-in-the-Fields on March 15, the Association was represented by Dr. Geoffrey Marshall.

Sir Humphry Rolleston writes:

Educated at Winchester and New College, Oxford, Crawfurd retained their scholarly impress, and it was in such an atmosphere that we first met in 1891 at the house in

Gordon Street of his relative, Dr. William Ogle, the superintendent of statistics at the General Register Office, translator and annotator of Aristotle's *On the Parts of Animals* (1882), and the third son of J. A. Ogle, Regius Professor of Medicine at Oxford from 1851 to 1857. Crawfurd was that admirable, though somewhat unusual, combination of the scholar-physician with the first-rate man of affairs, courteous, dignified, reticent, self-restrained, and thus reminiscent of a bygone day. At first his life was that of a young consultant in London, and he contributed to the *Transactions* of the old Pathological Society of London, and in 1909 brought out, with the present Regius Professor at Oxford, the fourth edition of Burney Yeo's *Manual of Medical Treatment*. But he was long handicapped by poor health, which for a time laid him entirely aside, and he gave up the ordinary Harley Street career. On recovery he devoted himself whole-heartedly to three institutions to their great benefit: at King's College Hospital, in the removal of which to Denmark Hill he had played an active part, he took a very practical interest in the school and the students, and the successes of his former house-physicians bear eloquent testimony to his influence. For years the moving spirit at Epsom College, he wrote fifteen hundred personal letters in his clear, characteristic script for an appeal. At the Royal College of Physicians of London he was, since 1925, the ideal Registrar, having previously held high office and delivered the Harveian Oration and the Fitzpatrick Lectures. His contributions to medical history, mainly carried through when physically laid aside, are of widely recognized value, and he was the third president, following Sir William Osler and Sir Norman Moore, of the Section of the History of Medicine at the Royal Society of Medicine, of which he also followed Sir Norman Moore as honorary librarian.

A correspondent writes:

It is no secret that the immediate predecessors of Raymond Crawfurd in the chairmanship of the Council of Epsom College had displayed neither the energy nor the capacity which he brought to that position; and that the reputation of the College had been definitely suffering in consequence. The thirteen years (1923–36) of his occupation of the chair were a period of reorganization and expansion in every direction: nothing was too small for him personally to inquire into, nothing great enough to frighten him. During this long period he strove incessantly for the improvement of the School and of the Foundation, with single-minded devotion and with outstanding success. For most men the work he did would have been a full-time occupation: but with Crawfurd it was but one of the many sides of his life. His handling of his Council was tact and discretion itself: if he had a failing as a chairman it may have been that he sometimes allowed undue prolixity in debate; but his quiet persuasiveness and imperturbable good temper made it impossible for anyone to quarrel with him, and his methods probably helped him to get his own way when a stiffer chairman might have failed. Now and then it happened that some reform on which he had set his heart did not commend itself at once to his Council. He would accept defeat without betraying the least annoyance—and then quietly set about a course of judicious lobbying among his opponents which would lead to success a few months later when the particular matter came up again. An instance of his ascendancy over his Council, or rather of the way in which it was built up, was afforded a few years ago, when at the close of a busy afternoon he addressed the members somewhat as follows: "Gentlemen, I must apologize for bringing up a topic which is not on the agenda, and I hope you will forgive me if you think I have exceeded my functions. I have felt for some time that our Biology Laboratory is out of date, and should be scrapped: Chemistry and Physics are so well equipped now that we must provide equally for Biology, and I have taken the liberty of asking our architect to draw out some plans." The plans were then produced, and when someone asked the probable cost the answer was "About £6,000." On a further inquiry where this sum of money was to come from, the chairman paralysed all opposition by a laconic statement that he had already obtained promises to the extent of £3,200.

Great as were the improvements to the College buildings for which he was responsible, Crawfurd's keenness on educational progress was greater still: he was more than once known to complain half humorously that he always found it easier to induce his Council to spend money on laboratories than on learning (laboratories was not the word he used, but it is near enough). As recently as the end of February he made a long speech to the College Council on current trends in secondary-school education packed full of practical wisdom and advice, which his colleagues were eager to accept. He had originally, when resigning the chairmanship, stipulated that he should leave the Council too, probably with a view to making things easier for his successor. It has been a real gain to the College that he was persuaded out of this resolve; he was a member of the Council for twenty-three years in all. When, after his resignation, he was presented by his past and present colleagues, quite contrary to his own wishes, with a piece of suitably inscribed silver plate, his speech in Big School to the assembled Council, masters, and boys was a model of what an oration in such circumstances should be—a masterpiece of simplicity and sincerity, phrased in flawless English.

[The photograph reproduced is by Elliott and Fry, Ltd.]

SIR ARTHUR DOWNES, M.D.

Late Senior Medical Inspector for Poor Law, Local Government Board

We regret to announce the sudden death of Sir Arthur Downes, on March 11, at his home on Mount Carmel, Haifa. He had been a member of the British Medical Association for just on half a century, and in his retirement became a member of the Palestine Branch.

Arthur Henry Downes, son of T. R. C. Downes, was born in Shropshire on October 11, 1851, and from Shrewsbury School went first to University College, London, and then to the University of Aberdeen, where he graduated M.B., C.M., with highest honours, in 1873, and proceeded M.D. two years later. He took the Cambridge D.P.H. in 1877, and soon afterwards entered the public health service, acting for a year as deputy medical officer in Shropshire and then as M.O.H. from 1879 to 1899 for the Essex combined areas. He was then appointed a medical inspector under the Local Government Board, and during thirty years' service was a member of the Royal Commission on Poor Law and Relief of Distress, and also a number of Departmental Committees, including those on workhouse dietaries, nursing in workhouses, workhouse accounts, feeding of prisoners, vagrancy, the Midwives Act, and the condition of the blind. He represented the Local Government Board on the Social Welfare Association for London and the Central Council for District Nursing. He was chairman of the first Committee on Homeless Poor in London, and after his retirement from work in Whitehall became a trustee of Lord Strathcona's charity for lepers.

Sir Arthur Downes was knighted in 1910 and received the Order of the Crown of Belgium. He took pride in recalling that his work published between 1877 and 1886 on the influence of light on bacteria and on protoplasm was the earliest research to reveal the destructive action of light on the micro-organisms of putrefaction and disease.

Sir Arthur MacNalty writes:

Last week witnessed the passing of two great gentlemen, Sir Raymond Crawfurd and Sir Arthur Downes. Their professional reputations were achieved in different branches of medicine: Sir Raymond was pre-eminent as a physician and medical historian, Sir Arthur won distinction first in medical research and afterwards in the field of public health and as a medical administrator. Yet they had this in common: they were both men of good will and considerate to all whom they met. In these hurried and strenuous days people are sometimes impatient of attention to the feelings of others. Good manners may be attributed to artificiality. In these two men their courtesy was an index of their infinite kindliness of heart.

Although there were links of old association between the Downes family and my own—my grandfather's Christian names were "Arthur Downes"—I first met Sir Arthur in 1908 when he was a member of the house committee of the Brompton Hospital for Consumption, to which I was then resident medical officer. Not only was I impressed by his wise counsel in matters affecting the administration of the hospital, but his advice to the committee on medical subjects was equally sound and valuable. When I left the hospital our friendship continued, and, subsequently, as a medical inspector of the Local Government Board, from time to time I came once more into official relations with him. He had a profound knowledge of the Poor Law and of the nursing services, and in his usual quiet and unobtrusive fashion he rendered great service to the Department. He was a member of the Royal Commission on the Poor Law, and if his counsels had prevailed the Poor Law would have been reformed twenty years earlier. His work in public health in Shropshire and Essex respectively early marked him out for distinction. He wrote to me in 1935:

"What a vast change has come over public health administration since 1876 when I deputized as M.O.H. for the old Shropshire Combined District of some twenty-one rural or urban sanitary authorities and when I took my Cambridge D.P.H. (at first known as the S.Sc.Cert. Camb.) in 1877 or 1878. I rather think I must be the doyen of D.P.H.

"Curiously enough a 'tightness' in the finances of Cyprus (in Turkish days) deprived me of a chance of joining the medical side of the L.G.B.; I had been invited to apply by the elder Sir George Buchanan, but just when my opportunity came it became necessary to find a place for Barry (who had greatly distinguished himself first as a M.O.H. in the North of England, then as a Sanitary Commissioner for Cyprus during British occupation). But, as I have said, chronic Turkish deficits 'axed' him. I had previously been invited by Simon to come to see him, but, being in the country, failed to avail myself of it. Of the immense improvement in the public health of England since those days there can be no question."

Downes's papers in the *Proceedings of the Royal Society* on the effect of light on bacteria and protoplasm, published many years ago, reveal him as a pioneer in medical research. He was the first to demonstrate the destructive action of light on the organisms of putrefaction and disease. So valuable was Sir Arthur's advice to the Local Government Board that his services were retained beyond the usual age of retirement. When at length he left us he did so with the affection and regret of all his colleagues. Sir Arthur had a delightful sense of humour and was a charming host. He had many interests in life, such as the development of nursing of the sick poor and the care of lepers. But he was also well read in general literature and I have many letters from him which reveal his knowledge of archaeology and natural history.

On retirement he lived in France for several years, and finally fixed his habitation on the top of Mount Carmel in Palestine. But as he wrote to me recently: "For a man in his 86th year there cannot be much prospect of an 'abiding city' on earth." The words of Greville concerning Sir Philip Sidney are truly applicable to Arthur Downes; and I cannot sum up his character in better words: "Indeed, he was a true model of worth; . . . withal, such a lover of mankind and goodness that whoever had any real parts in him, found comfort, participation and protection to the utmost of his power."

RICHARD HUXLEY FISH, M.D., M.R.C.P.

We regret to record the sudden death on February 15, from subarachnoid haemorrhage, of Dr. R. Huxley Fish, at the untimely age of 32, when he had held the post of physician to Harefield Sanatorium for but a very few months. The only son of Dr. Cecil Fish, who died when he was a boy, Huxley Fish was educated at Bedales School and at Clare College, Cambridge, where he was a scholar. Dr. Fish gained first-class honours in the Natural Sciences Tripos in 1927, and proceeded to St. Thomas's Hospital, where he qualified in 1930; he took the M.R.C.P. in 1932, graduated M.B. of Cambridge in 1934 and M.D. in 1936, and took the diploma in child health in the same year. He was house-physician and children's house-physician, as well as holding other resident posts, at St. Thomas's Hospital, and then became assistant medical officer to the L.C.C. High Wood Hospital for Children at Brentwood. Later he was senior assistant medical officer at Colindale Hospital until his appointment as physician under the Middlesex County Council. Dr. Fish had already made his mark in the specialty of tuberculosis, where he was recognized as perhaps the most distinguished of the younger men. He was possessed of a very unusual charm of manner, and his patients and his colleagues were all devoted to him. He wrote on the treatment of chorea by induced pyrexia in this *Journal* in 1933, using intravenous injections of a triple typhoid vaccine with successful results. In 1937 an annotation appeared in our columns (May 1, p. 925) on his monograph in the *Archives of Disease in Childhood* (1937, **12**, 1) on chronic miliary tuberculosis in children; this monograph confirmed the work of previous investigators that there is a chronic form of miliary tuberculosis which is not necessarily fatal, and in the treatment of which absolute rest is all-important. From the quality of his work, which showed him to be a careful and earnest physician, his early death is all the more to be regretted, for he left a mass of material ready to be polished into final form. He leaves a widow and three little sons, to whom goes out the sincere sympathy of all who knew him and had such high hopes for his future.

Dr. SARA E. WHITE, who died on February 10, aged 82, was born in Ireland of Quaker stock. She came to London to study at University College, and took the B.Sc. in 1891, with honours in physiology, in which subject she was for a time a demonstrator. She soon, however, decided to follow in the footsteps of her cousin,

Dr. Helen Webb, and graduated M.B.Lond. in 1896 at the mature age of 44. Dr. White did not take up general practice. While still a student she felt strongly the urge to work for a change in the general attitude towards the mental needs of patients. This was many years before there was any question of psychology having a place in the medical curriculum. Dr. White was a foundation member of the Society for the Reform of the Lunacy Laws, and published notes and letters in the *British Medical Journal* and the *Lancet*. She never spared herself in working to help the helpless. Some of her colleagues had the pleasure of sharing her success in obtaining the discharge of patients detained in mental hospitals after showing evidence of cure. She gave freely of her time, energy, and means towards the establishment of homes for cases of early mental breakdown at its very beginning, before certification should be considered. The cause which she thus espoused has not yet come into the purview of the medical student, and she felt keen disappointment at failing to secure the co-operation of the profession. She had not let any of her many friends know of her illness, and in the presence of only a few near relatives she was buried in the Friends Meeting House ground at Wanstead.

Dr. THOMAS WILLIAM FRANCIS GANN, who died in London on February 24 at the age of 71, was well known as an adventurous explorer and an authority on the archaeology of Central America. The only son of William and Rose Gann of Hayling Island, he received his medical education at the Middlesex Hospital, qualifying L.S.A. in 1889 and obtaining the diplomas M.R.C.S., L.R.C.P. the next year. In 1907 he took the Liverpool D.T.M., and was for some time Principal Medical Officer in British Honduras and a member of the Legislative Council. His life interest in Central America began with a journey there in charge of a medical expedition to relieve the sufferers from an earthquake in Guatemala, for which he was thanked by the Colonial Secretary; after this he entered the service of the Government of British Honduras at Belize. He made frequent journeys of exploration into the interior in order to search for ruins of the ancient Maya civilization. Among his many publications on this subject were *Maya Cities* in 1927 and *History of the Maya*, which followed this book two years afterwards. When in 1930 Dr. Gann married Miss Mary Wheeler of Jersey their honeymoon took the form of a trip through the Guatemalan jungle. He believed that immigrants from North-Eastern Asia in the late neolithic period had first discovered America. Dr. Gann was elected a Fellow of the American Geographical Society in 1927, and was a Fellow of the Maya Society and a lecturer at Liverpool University on Central American archaeology.

Dr. JOHN PAUL ROUGHTON, J.P., who was formerly acting medical officer of health for Kettering and surgeon to Kettering General Hospital, died suddenly on February during a Mediterranean cruise. Dr. Roughton received his medical education at St. Bartholomew's Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1886 and the D.P.H. two years later. He held the post for some time of assistant electrician at St. Bartholomew's. The eighth son of the late Dr. J. J. Roughton, first chairman of the Kettering Local Board, he eventually succeeded his father in the Kettering practice which had been founded by his great-great-grandfather in 1710, and was one of the surgeons to Kettering General Hospital from 1897 to 1926, when he was elected consulting surgeon. In 1911 he joined the British Medical Association, and was a representative on the Representative Body at the Annual Meeting of the Association at Aberdeen in 1914. In 1933 he retired from practice and went to live in Cambridge with his only surviving son, Dr. F. J. Roughton, thus ending a family succession of medical practitioners in Kettering which had continued unbroken for more than two hundred years. His wife died in 1931; they had both been prominent in local medical and social organizations.

The death took place at his home in Edinburgh of Dr. J. OLIVER HAMILTON, at the age of 52, from the result of his war disability. He was educated at George Watson's College. He graduated M.B., Ch.B. in 1908 at Edinburgh University, and took his D.P.H. in 1928. In 1910 he joined the R.A.M.C. Reserve of Officers and saw service as a regimental medical officer during the early hardships of the retreat from Mons to the Marne. He was attached in 1915 to No. 10 General Hospital, B.E.F., Rouen, and when he retired from the service in 1917 he was in command of No. 4 Ambulance Train, B.E.F., France. He was the son of a well-known and beloved Border practitioner, John Rodgerson Hamilton, M.D., of Hawick, who was chairman of the Scottish Committee of the British Medical Association when hostilities broke out in 1914, and did much valuable service in helping to muster the medical services in Scotland. Oliver Hamilton was associated in practice with his father, and after his death continued the practice in Hawick, where he held many public appointments, medically and socially. He was a football enthusiast, and was president of the Hawick Rugby Association in 1914. He was much esteemed by his patients for his gifts of heart and mind and outstanding professional ability. In 1919 he was forced to seek a warmer and more congenial climate in the South of England. He was actively engaged doing bacteriological research in Bournemouth and district. After leaving there he took a public health appointment in Barbados, B.W.I., and on relinquishing it was appointed chief medical officer to the Burma Corporation Limited. During the past five years he travelled extensively in the Dominions and elsewhere in a quest for renewed health. He will long be remembered by those who knew him for his gay courage and dauntless endeavour to carry on in the face of continued ill-health. He was an agreeable colleague, and possessed a charm of manner that came from a wide culture and a charitable judgment of his fellow men.

Dr. RICHARD LIDDON MEADE-KING of Taunton died suddenly on February 25 in the home of a sick friend whom he was visiting. He was born in 1861, and studied medicine at St. Bartholomew's Hospital, taking the M.R.C.S. and L.R.C.P. in 1892, the M.B., B.S. of Durham University in 1893, and the M.D. in 1895. Dr. Meade-King was honorary physician to the Taunton and Somerset Hospital from 1897 to 1924, when he was elected consulting physician, and was president of the hospital in 1931. He had been honorary secretary of the Somerset Archaeological Society, and was particularly interested in ornithology. He joined the British Medical Association in 1894, and was president of the West Somerset Branch in 1906–7.

Dr. JAMES ARTHUR RICHARD LEE of Mexborough, who died on March 2 aged 66, had practised in that town for twenty-seven years, and was recently chairman of the Doncaster Division of the British Medical Association. He began his career as a pharmacist, and then studied medicine at Sheffield University, obtaining the M.R.C.S. and L.R.C.P. diplomas in 1910. Dr. Lee took a prominent part in local affairs, and had been a Justice of the Peace since 1928. He was honorary surgeon to the Montagu Hospital, Mexborough, and as secretary of the medical staff of that institution played a leading part in the recent dispute with the board of management. His three sons are all members of the medical profession.

Mr. ARCHIBALD WILLIAM CUFF, F.R.C.S., one of Sheffield's best-known surgeons, died on March 9, after a long illness, at the age of 69. A native of Staffordshire, he studied medicine at Cambridge and St. Thomas's Hospital, taking the English Conjoint diplomas in 1893, the

M.B., B.Ch. degrees in 1894, and the F.R.C.S. in 1895. Mr. Cuff's first association with the Sheffield Royal Infirmary was as house-surgeon. He then practised in partnership for some time, relinquishing general practice on his appointment to the visiting surgical staff at the Royal Infirmary. He was for some years lecturer in surgery at the University of Sheffield and an examiner in surgery for the University of Cambridge. From 1898 he had been medical referee for the Sheffield and Rotherham County Court Districts under the Workmen's Compensation Act. During the war he served with the Royal Field Artillery (T.) as surgeon major in France, and a few years after his return to civil life he was appointed a justice of the peace. At the Annual Meeting of the British Medical Association in Sheffield in 1908 he was vice-president of the Section of Surgery.

We regret to announce the death last month, at the age of 84, of Dr. SAMUEL E. MOSTYN HOOPS, in Victoria, British Columbia. After qualifying in Dublin in 1874 he practised for many years at Douglas, Isle of Man, where he was Commodore of the Douglas Bay Yacht Club in 1894, when the *Britannia* and other big yachts took part in the regatta. In 1897–8 he went on an overland expedition from Edmonton to the Klondyke, and never returned to the British Isles. For some years he practised at Soda Creek up the Cariboo Trail in British Columbia, and was coroner and medical officer in charge of the Red Indian Reserves over a wide area. Dr. Hoops was also well known as a breeder of cattle and horses on his ranch. At the age of 70 he moved to Sidney, near Victoria, Vancouver Island, where he was also coroner and in charge of Red Indian Reserves, and indulged his taste for yachting and fishing. He was for many years a member of the British Medical Association, and his son, Dr. A. L. Hoops, C.B.E., of Malacca, late Principal Civil Medical Officer for the Straits Settlements, has attended a number of Annual Meetings of the Association.

The death is announced of FÉLIX MESNIL of the Pasteur Institute in Paris. Holding no medical qualification, he contributed much to the knowledge of medicine by his studies as a biologist. He was born in 1868, and became attached to the Pasteur Institute in 1892. He worked under Metchnikoff and Laveran on the protozoa pathogenic to man, and he collaborated with Laveran in the publication of *Trypanosomes et Trypanosomiases*. It is claimed for Mesnil that he inaugurated the chemotherapy of diseases of parasitic origin. At the Pasteur Institute he organized classes in protozoal pathology for colonial doctors. He was a member of the Académie des Sciences, Académie de Médecine, and Académie des Sciences Coloniales, and Commander of the Legion of Honour.

The American ophthalmologist JAMES A. SPALDING, whose death at the age of 91 occurred at Portland, Maine, on February 27, had studied at Harvard under Oliver Wendell Holmes, had attended Brown-Séquard's lectures on internal secretions, and had seen Henry Jacob Bigelow perform the first litholapaxy in the world in 1878. Though deaf from youth, Dr. Spalding had learnt eleven languages.

Dr. LILLIAN WELSH, for thirty years professor of physiology and hygiene at Goucher College, Baltimore, Maryland, and one of the first American women to practise medicine, died on February 23, aged 80.

The following well-known foreign medical men have recently died: Dr. EVERT CORNELIS VAN LEERSUM, formerly professor of medicine at Leiden and director of the Netherlands Institute of Nutrition at Amsterdam; Professor WILHELM HEUCK, an eminent dermatologist of Munich, aged 62; and Dr. HERMANN SCHMIDT, formerly director of the Charité Hospital in Berlin.

Medical Notes in Parliament

Both Houses of Parliament this week discussed European affairs. The House of Commons also debated the Air Estimates and civil aviation policy. The Navy Estimates were down for March 17.

The House of Lords on March 10 gave third readings to the Blind Persons Bill and the Population (Statistics) Bill. Both measures had already passed the House of Commons, and the House of Lords has not amended them.

The Workmen's Compensation (Amendment) Bill, as amended in Standing Committee, was read a third time in the House of Commons on March 9. It was read a first time in the Lords on March 10.

The Divorce and Nullity of Marriage (Scotland) Bill was read a first time in the House of Commons on March 14.

Dr. Howitt has been added to the Scottish Standing Committee for discussion of the Registration of Stillbirths (Scotland) Bill. This measure was down for discussion on March 17.

Variation in Benefits of Approved Societies

Mr. JAMES GRIFFITHS asked on March 10 if the Minister of Health was aware of the growing concern felt by a number of the smaller approved societies operating under the National Health Insurance Acts at the loss of membership to larger and richer societies, who were able to offer inducements to insured persons to transfer because of the wider range of additional benefits offered. Mr. Griffiths asked the Minister to inquire into the possibilities of co-ordinating the health insurance services so that all those who made equal contributions should secure equal benefits under the State insurance scheme. Sir KINGSLEY WOOD said he did not agree that the smaller approved societies were ordinarily at any disadvantage compared with the larger societies as regards the additional benefits which they could provide for their members. Insured persons had freedom of choice of society, and some would seek to transfer from societies with relatively unfavourable valuation results to others in a more favourable position. There was, however, statutory provision for the protection of the weaker societies against undue loss of membership by transfer. The position, in his opinion, did not call for the course suggested by Mr. Griffiths, which would involve the abolition of the approved society system.

Health of Recruits

Introducing the Army Estimates on March 10, Mr. HORE-BELISHA said the labours of the scientists employed by the War Office would be co-ordinated by a Director of Scientific Research. Suitability and merit would in the Army, as in outside professions, determine the selection of officers for the most responsible posts. Mr. Hore-Belisha did not mention the Army Medical Corps, but said the general establishment of officers would be reduced by 1,000, and that warrant officers would be given an opportunity of discharging some of the responsibilities now confined to the commissioned ranks. The proportion of rejections was high among the 60,000 would-be recruits who tried to join the Army annually. The service should be enlarged whereby recruits below the normal physical standard could be brought into better health. Out of every hundred boys passed through the Physical Development Depot, which was now at Canterbury, ninety-two passed into the Army as fully fitted soldiers. At least one more such depot would be opened in 1938. Not only recruits in these depots, but all others who, in the opinion of the medical officer, needed special nourishment would have an extra issue of half a pint of milk. The issue would be "neat." The Government intended to adapt all barrack accommodation to the latest standard, and had arranged for experts to review the present arrangement for cooks, bearing in mind the importance

of food in health. The ration of butter would be issued at stations abroad as well as at home. Men discharged as unfit on medical grounds would be given twenty-eight days' furlough on full pay.

After debate the necessary Votes for the Army were carried through committee.

Diseases in Cattle

On a Supplementary Vote for the Ministry of Agriculture and Fisheries, which was agreed to on March 9, Mr. H. RAMSBOTHAM said that because of outbreaks of foot-and-mouth disease additional expenditure was needed in connexion with the Diseases of Animals Account. There had been a saving in respect of tuberculosis in cattle. During the first six months of 1937-8 there had been only seventeen outbreaks of foot-and-mouth, costing £35,000, but since then 267 other outbreaks costing £455,000. The outbreak which began in the middle of October was of a severe character. Its source was Central Europe. It was apparently reintroduced into France from North Africa. At the peak stage, when Great Britain had eighty-seven outbreaks, there were 45,085 in France, 22,419 in Belgium, and 21,604 in Germany. Since then in this and other countries there had been a satisfactory decrease. In January Great Britain had seventy-five outbreaks, in February twenty-six, and in March up to the 8th, one. The heaviest infection was at the time of the autumn mass migration of birds to the eastern and southern counties. It was highly probable that the birds were mechanical carriers of the virus. This country, by expenditure of £500,000 and destruction of 50,000 animals, had been saved a disaster. The Foot-and-Mouth Disease Research Committee had recently been strengthened. It consisted of scientists in the medical and veterinary professions under the chairmanship of Sir Joseph Arkwright. It was attending to the problem of immunization, which was complicated because there were several types of virus in this disease. Immunity might be secured against one type which would not give immunity against another. The committee had outlined experiments to see whether birds were susceptible to the disease or capable of mechanically transmitting the virus. The question of a serum, as employed in Germany, had been studied, but experiments had not been very successful.

SIR STAFFORD CRIPPS asked why less had been spent in dealing with tuberculosis in cattle, although the House was anxious that the purification of the milk supply should proceed rapidly.

Mr. W. S. MORRISON said the Foot-and-Mouth Disease Research Committee was ready to consider any suggestion. There was a complete international exchange of information on research, which was collected by a central office in Paris. He agreed that the policy of clearing the herds of disease was the most satisfactory way of securing a supply of clean milk. There was no slackening of efforts on that score, and the assault on the disease by a central State veterinary service would begin on April 1. About fifteen months ago a serum against foot-and-mouth disease had been received from Germany which was efficient in the mild attacks but could not be recommended as an alternative to slaughter. It was largely employed on the Continent in the recent outbreak, but the disease was completely victorious over the supposed immunity.

The Supplementary Estimate was approved.

Problems of Ventilation on the London Underground

In the House of Commons, on March 8, Sir RALPH GLYN moved the second reading of the London Passenger Transport Board Bill. He said that owing to the increased number of coaches attached to the ordinary trains run on the London Passenger Transport Board system and to the fact that the tunnels had been extended in many cases the ventilation had become of great importance. It was the duty of the Board to see that there was adequate and proper ventilation throughout the tube system. If the Bill was not given a second reading that work would be delayed. It had been found in practice that the ordinary extractor fans did not accomplish the work as satisfactorily as was expected, and it was essential to acquire property and sink shafts in order to have clear ventilation to the upper air.

Last May there was presented to the House a report which was the result of an inquiry into the whole question of the factors that governed the omnibus stoppage of last year. At that inquiry a good deal of emphasis was laid on the fatigue and undue strain that the men suffered. It was essential, if the Board was to do their duty by its employees, that they should give effect to the recommendations in the report with regard to the provision of facilities for meals for their employees. The Bill carried out those recommendations.

After a long discussion, in which a motion was made for the rejection of the Bill, the debate was adjourned by 186 votes to 131.

Diabetes and Entry into the Civil Service.—Colonel COLVILLE states that there is no regulation debarring those suffering from diabetes from entry to the civil service. The existence of the disease is, however, a factor which has to be considered in the medical examination which is undergone by candidates for entry to or establishment in the public service. Each case is decided on its merits by the appropriate authority in the light of the medical report. Since it has to be considered not only whether the candidate is at present fit for the duties of the post he seeks but also whether he will remain so till the age of retirement, this decision must often be adverse in spite of the efficacious treatment available.

Osteopathic Research.—Mr. GROVES asked whether the Scottish Osteopathic Research Institute was licensed to perform vivisections, and where the experiments on rats were performed that were referred to in the first report of that Institute. Sir SAMUEL HOARE replied, on March 8, that the Scottish Osteopathic Research Institute was not a registered place under the Cruelty to Animals Act, 1876. The experiments in question were performed at the Institute of Animal Genetics, a registered department of the University of Edinburgh.

Marriage Allowances to Officers of the Navy.—On March 14 Mr. SHAKESPEARE informed Sir M. Sueter that the award of marriage allowance to officers of the Royal Navy and Royal Marines had been approved. A more detailed announcement must await the Navy Estimates later in the week.

Cod-liver Oil Imports.—Captain WALLACE, replying to Mr. R. Gibson on March 14, said that the total imports into the United Kingdom of cod-liver oil consigned from Norway amounted to 1,894 tons during 1929 and to 383 tons during 1937. Since the duty of 1s. 4d. a gallon was imposed on foreign cod-liver oil under the Ottawa Agreements Act, 1932, imports from Newfoundland had increased, and there had been a substantial development of United Kingdom production.

Grants for Veterinary Research.—On March 15 Mr. LLOYD informed Mr. Anstruther Gray that the Racecourse Betting Control Board had made a grant of £1,000 for investigation into grass sickness at the Institute of the Animal Diseases Research Association at Moredun, near Edinburgh, and a further grant of £750 had been approved. A grant of £625 had been made to research into disabling diseases of horses at the Royal (Dick) Veterinary College, Edinburgh, and a further grant of £650 had been approved. A grant of £500 had been made to the building fund of the Royal (Dick) Veterinary College and a further grant of £500 had been approved. It was proposed to make a grant of £500 to the Glasgow Veterinary College.

Dispensing of Insurance Prescriptions in West Lothian.—Mr. ELLIOT, replying to Mr. Mathers on March 15, said that the West Lothian Insurance Committee had recently decided that it was no longer necessary to require an insurance practitioner to dispense medicines for his insured patients in the Livingston Station area, West Lothian. As by statute it was open to any insured person affected by this decision to refer it for determination to the Department of Health for Scotland, it would not be proper for him to make any statement on the subject at present.

Accommodation for the Sick on Troop Transports.—On March 15 Mr. DE LA BÈRE asked the Secretary of State for War, in connexion with the improved accommodation on transports for trooping, what steps were being taken to provide improved accommodation for the sick. Mr. HORE-BELISHA said that the hospital accommodation in a transport provided both for invalids from stations abroad and for cases of sickness arising on the voyage. In the newer transports and the two under construction the cubic space for each individual had been increased. Improved types of bed and cot and better ventilation and lighting arrangements had been installed. The dispensaries were larger, and facilities for microscopic work had been provided. Several other kinds of improvement had been adopted, such as refrigerators instead of ice chests, proper cot-lifting units, and so on. The women's wards were similarly improved, and a separate medical inspection room for women had been provided. In the older transports higher standards of comfort and equipment had been provided as far as the accommodation would allow.

Universities and Colleges

UNIVERSITY OF OXFORD

Wilton Ernest Henley, B.M., second assistant in the Medical Unit at St. Mary's Hospital, formerly Rhodes Scholar of New College, has been elected to a travelling Fellowship on the Foundation of Dr. John Radcliffe at University College.

UNIVERSITY OF CAMBRIDGE

At a congregation held on March 11 the following medical degrees were conferred:

M.D.—S. McDonald, K. M. A. Perry, J. Smart, V. H. Riddell.
M.CHIR.—W. F. Nicholson.
M.B., B.CHIR.—*A. L. Cochrane, *G. R. Rawlings, *J. K. Moore, R. L. Townsend, D. Rubin.

* By proxy.

During February the title of the degree of M.B. was conferred by diploma on B. J. Travers of Newnham College.

UNIVERSITY OF LONDON

Dr. Phyllis Margaret Kerridge has been appointed a teacher of physiology at University College in the Faculty of Science.

The date of the M.D. (Branch V) examination for internal and external students has been changed to the first Monday in July, for examinations in and after July, 1938.

Lord Horder has been appointed representative of the University at the International Congress on Rheumatism and Hydrology, to be held at Oxford from March 26 to 31, and Mr. P. H. Mitchiner a member of the University Extension and Tutorial Classes Council for the remainder of the year 1937–8.

Dr. J. A. Drake has resigned the post of teacher of dermatology at King's College Hospital Medical School.

I. P. J. MacNaughton, M.B., F.R.C.S., has been awarded a grant of £120 to enable him to study the methods of Dr. W. J. McNally of Montreal for not less than three months during 1938.

Revision of Building Plans

Changes have been decided upon in the plans for the University buildings to be erected to the north of the existing new buildings in Bloomsbury. Under the revised plan the view of the great Tower as seen from the north will be preserved, and Torrington Square will become the University garden. The original layout made provision for one continuous group of buildings covering the centre of the site from north to south and embracing a number of separate institutions each with its own internal organization. The architectural scheme consisted of a central spine from north to south, with cross-ribs from east to west, these ribs being joined by a continuous façade fronting on Malet Street. The plan included a number of enclosed courtyards, but it was found later that the requirements were more agreeably met by enclosing alternate courts only. The main units of the first section of the new building, comprising the Senate House, the University Library and Tower and the Institute of Education, School of Slavonic Studies, and Institute of Historical Research, balance each other effectively. It has been decided to arrange future units of the University group round Torrington Square. The first buildings to be erected under the revised plan will be Birkbeck College and the School of Oriental Studies, occupying the southern end of the space available for building on the east and west sides of Torrington Square. The modifications in the architectural scheme are being submitted to the London County Council, the Holborn Borough Council, and other interested bodies.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the College was held on March 10, with the president, Sir Cuthbert Wallace, Bt., in the chair.

Diplomas

A Diploma of Membership was granted to Robert Cox of Westminster Hospital.

Diplomas of Fellowship were granted to the following candidates:

I. E. Zieve, J. A. Dhacka, D. M. Jones, J. H. Mayer, R. G. Talwalkar, E. Vernon, Margaret M. Ferguson, R. H. Karmarkar, M. N. Khanna, T. D. V. Krishnan, R. S. Lawson, J. F. Shepherd, M. Sofer Schreiber, S. P. Srivastava.

Diplomas in Ophthalmic Medicine and Surgery were granted, jointly with the Royal College of Physicians, to the following candidates:

G. H. Appel, A. H. Booth, D. K. Bose, G. H. Buck, E. W. B. Griffiths, S. P. Gupta, A. G. Hiremath, J. Joels, J. B. S. Karki, H. O. Little, J. Macaskill, N. C. Mandalia, J. D. Martin-Jones, T. R. Pahwa, J. B. Patrick, H. Penman, C. V. D. Rose, E. N. Rosen, R. Stuart, R. A. Syed, S. Wigoder.

Mr. C. P. G. Wakeley was re-elected a Member of the Court of Examiners.

The University of Hyderabad was recognized for the study of anatomy and physiology for the Primary Fellowship examination.

Mr. P. B. Ashcroft, F.R.C.S., was re-elected Streatfeild Research Scholar.

A vote of condolence was passed on the death of Sir Raymond Crawfurd, registrar of the Royal College of Physicians of London.

INTER-COLLEGIATE SCHOLARSHIPS BOARD

The London Inter-Collegiate Scholarships Board announces that an examination for twelve medical scholarships and exhibitions of an aggregate total value of £1,443 will commence on May 9. They are tenable at University College and University College Hospital Medical School, King's College and King's College Hospital Medical School, the London (Royal Free Hospital) School of Medicine for Women, the London Hospital Medical College, and St. George's Hospital Medical School. Full particulars and entry forms may be obtained from the secretary of the Board, Mr. S. C. Ranner, M.A., at King's College Hospital Medical School, Denmark Hill, S.E.5.

The Services

HONORARY SURGEON TO THE VICEROY

Colonel A. F. Babonau, C.I.E., O.B.E., I.M.S., has been appointed Honorary Surgeon to the Viceroy and Governor-General of India, vice Colonel S. G. S. Haughton, C.I.E., O.B.E., I.M.S.

DEATHS IN THE SERVICES

Captain HORACE HARVARD KIDDLE, who had served in both the Indian Medical Service and the Royal Army Medical Corps, died in London on March 4, aged 60. He was born on October 30, 1877, was educated at St. Thomas's Hospital, and took the M.R.C.S., L.R.C.P. in 1902. He entered the Indian Medical Service as lieutenant on September 1, 1902, became captain after three years' service, and on December 18, 1907, exchanged into the Royal Army Medical Corps, changing places with the late Lieutenant-Colonel (then Captain) W. H. Odlum, I.M.S. He was placed on temporary half-pay, on account of ill-health, on September 1, 1911, and retired on June 25, 1913. Since his retirement he had been in practice in London. While in the Indian Medical Service he held the post of chemical examiner and bacteriologist to the Government of Burma.

No. 9

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 5, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 125 great towns (i) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns (ii) in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	50	7	10	1	2	25	2	12	2	1		
Deaths		1	2				1	5				
Diphtheria	1,556	172	289	75	38	1,087	146	212	33	35	1,114	164
Deaths	50	8	7	4	—	35	3	6	1	1		
Dysentery	155	44	73		—	15	2	23		—		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	3	—	1		—	1	—	3		—		
Deaths		2					1					
Enteric (typhoid and paratyphoid) fever	16	1	1	5	2	41	7	5	5	1	29	—
Deaths	—	—	1	—	—	—	—	—	—	—		
Erysipelas			81	7	8			72	11	5		
Deaths		1					2					
Infective enteritis or diarrhoea under 2 years												
Deaths	56	19	5	9	1	58	19	9	3	5		
Measles			1,747		237*			137		2		
Deaths	44	14	21	1	13	10	—	1	3	—		
Ophthalmia neonatorum	118	13	41		—	85	11	17		—		
Deaths												
Pneumonia, influenzal‡	1,294	107	8	8	9	1,256	85	40	32	3	1,697	146
Deaths (from Influenza)	57	6	4	1	1	181	16	27	7	1		
Pneumonia, primary			280	13				254	4			
Deaths		19		32	22		15		24	13		
Polio-encephalitis, acute	1	—				1	1					
Deaths		—					—					
Poliomyelitis, acute	6	1	—		—	2	1	1		—		
Deaths		—					—					
Puerperal fever	5†	5	23	2	2	38	3	26	3	1		
Deaths		—					—					
Puerperal pyrexia	188	19	30		2	122	17	24		5		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths						—	—					
Scarlet fever	2,367	182	472	111	97	1,652	161	368	81	27	1,762	233
Deaths	8	—	1	—	1	4	1	—	3	—		
Small-pox	2	—	—		—	—	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths				—	—	—	—		—	—		
Whooping-cough			80		16			646		7		
Deaths	26	2	1	1	2	21	4	22	10	1		
Deaths (0-1 year)	420	70	79	53	27	445	75	104	42	23		
Infant mortality rate (per 1,000 live births)	70	58				71	62					
Deaths (excluding stillbirths)	5,449	1,108	791	253	167	5,440	1,009	879	264	178		
Annual death rate (per 1,000 persons living)	13.4	14.0	14.4	17.1	14.8	13.5	12.6	17.0	18.0	17.0		
Live births	6,823	1,249	925	389	253	6,514	1,294	878	340	247		
Annual rate per 1,000 persons living	16.8	15.7	18.9	26.3	22.4	16.2	16.1	17.9	23.2	23.6		
Stillbirths	267	28				281	42					
Rate per 1,000 total births (including stillborn)	38	22				41	31					

(i) 122 great towns in 1937.
(ii) 9 " " " "

* 217 cases in Belfast alone.

† After October 1, 1937, puerperal fever was made notifiable only in the Administrative County of London.

‡ Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Incidence of Principal Infectious Diseases in England and Wales during February

In the four weeks ending February 26, 1938, there were notified in England and Wales: 9,471 (121 per cent.) cases of scarlet fever; 6,749 (132 per cent.) of diphtheria; 4,559 (63 per cent.) of primary pneumonia; 127 (108 per cent.) of enteric fever. The figures in parentheses denote the increase or decrease per cent. of the expected numbers, deduced from the median values of the corresponding weeks of the years 1929–37. It is seen that with the exception of pneumonia there has been an appreciable increase of the principal infectious diseases in England and Wales during February, compared with that of the last nine years; this increase, with the emergence of measles in epidemic form in many areas, has severely taxed the hospital accommodation of many sanitary authorities.

Diphtheria and Scarlet Fever

In England and Wales notifications of diphtheria were 1,556, compared with 1,565 last week, while in London, Scotland, Eire, and Northern Ireland appreciable increases were recorded. There was an increase of deaths in England and Wales, 50 (34); in London, 8 (3); in Scotland, 7 (5); while in Eire deaths were the same as last week, 4. The figures in parentheses denote the deaths for the previous week. In England and Wales the notifications of scarlet fever have dropped from 2,429 to 2,367, the London figures being 198 and 182 respectively. On the other hand, increases were observed in Scotland 472 (459), in Eire 111 (90), Northern Ireland 97 (87). In England and Wales there were 8 (2) deaths, in Scotland there was 1 (1) death, and in Northern Ireland 1 (0). The figures in parentheses denote deaths in the previous week.

Measles

In the 125 Great Towns there were 44 deaths from measles, compared with 50 in the previous week; of these, 14 (13) occurred in London, 4 (3) in Birkenhead, 1 (2) in Manchester, 3 (1) in Liverpool. In London the epidemic appears to be increasing in magnitude: 2,165 cases of measles were reported in the L.C.C. elementary schools, compared with 1,801 in the previous week; the average daily admissions to the L.C.C. fever hospitals were 86, compared with 68 in the previous week; and the number of cases of measles under treatment on Friday, March 4, in the L.C.C. fever hospitals was 1,542, compared with 1,361 on the previous Friday. On the same day there were in these hospitals 1,277 cases of diphtheria, 819 of scarlet fever, and 277 of whooping-cough. The notifications of measles in London boroughs for the week under review are: Battersea 187, Bermondsey 45, Finsbury 25, Fulham 110, Greenwich 74, Lambeth 353, Shoreditch 16, Southwark 137, Stepney 37. In Scotland 1,747 cases were notified, compared with 1,653 in the previous week, the figures for Glasgow being 1,247 (16), Edinburgh 66 (3), Paisley 94, Dundee 162, Aberdeen 48. The figures in parentheses denote the deaths. In Northern Ireland there were 237 cases, compared with 295 in the previous week: the figures for Belfast were 217 against 281, while the deaths were 12, compared with 17 in the previous week. During the week one death from measles was recorded in Dublin.

Infantile Paralysis

The epidemic of infantile paralysis in Victoria, Australia, which has lasted for eight months and which has been five times greater than any former outbreak, is now regarded as over, although sporadic cases may be expected for some time. During this period 1,984 cases were notified and there were 99 deaths (case mortality just under 5 per cent.).

Typhus in Morocco

In Morocco during the week ended February 26 298 cases of typhus were notified, of which 68 were in Marrakesh and 17 in Casablanca. During the same week there were 60 cases in Egypt, of which 5 occurred in frontier districts, 1 in Alexandria, and the rest widely scattered in the different provinces. In Tunisia there were 59 cases, of which 2 occurred at Bizerta and 1 at Tunis. In the previous week 24 cases were reported in Algeria, of which 5 were in Algiers and 2 in Oran. In the week ended February 5 20 cases were reported in the United States: South Carolina 1, Georgia 6, Florida 6, Alabama 3, Texas 4.

Medical News

The Trueman Wood Memorial Lecture will be delivered by Lord Horder before the Royal Society of Arts, John Street, Adelphi, W.C., on Wednesday, March 23, at 8.30 p.m. His subject is "Public Health: The Hygiene of a Quiet Mind." Applications for tickets should be made to the secretary of the society.

Count Castellani will read a paper on "Hygienic Measures and Hospital Organization of the Italian Expeditionary Forces during the Ethiopian War, 1935–6" before the Royal Society of Arts, John Street, Adelphi, W.C., on Wednesday, March 30, at 8.15 p.m. The chair will be taken by Sir Humphry Rolleston. Applications for tickets should be made to the secretary of the society.

A meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Friday, March 25. At 5 p.m. there will be a business meeting, and at 6 p.m. Dr. J. C. Bridge will speak on "First Aid in Factories" and Mr. P. H. Mitchiner on "Minor Surgery applied to Industrial Medical Services." On Saturday, March 26, at 10 a.m., at St. Thomas's Hospital, Mr. Mitchiner will give a practical demonstration of minor surgery and casualty surgical methods.

Ulaws (University of London Animal Welfare Society) has arranged a meeting for Tuesday, March 22, at 5.15 p.m., in the Beveridge Hall, Montague Place, W.C., for a discussion on the survey and regulation of British fauna, entitled "Man's Relation to Nature and his Response." The principal speakers are Lord Tavistock and Professor F. A. E. Crew. The regulation of economically or aesthetically beneficial or harmful species, field sports, epizootics, importation, and commercial exploitation will be examined in conjunction, and with reference to humane requirements. Applications for tickets should be made to the honorary secretary, Ulaws, 42, Torrington Square, W.C.1.

During the present week-end the Incorporated Society of Chiropodists is holding its annual convention in London at the Langham Hotel. To-day, Friday, March 18, at 5 p.m., Professor J. H. Burn, M.D., gives a lecture on "The Disinfection of the Skin and of Superficial Wounds," and on Saturday medical films will be shown by Mr. H. A. T. Fairbank, Sir Harold Gillies, Mr. R. Watson Jones, and Dr. Erwin Straus of Berlin. The guests at the annual dinner include Sir Cuthbert Wallace, President of the Royal College of Surgeons, Sir Charles Gordon-Watson, and Dr. T. Carnwath of the Ministry of Health.

A meeting of the Medical Section of the British Psychological Society will be held at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday, March 23, at 8.30 p.m., when a paper will be read by Dr. Margaret Lowenfeld on "The World Pictures of Children: A Method of Recording and Studying Them."

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, March 24, at 8.30 p.m., when a paper will be read by Dr. S. W. Fisher on "Medico-legal Aspects of Coal Mining."

On the occasion of the fiftieth anniversary of its foundation the Obstetrical and Gynaecological Society of Vienna held a special meeting on February 16, when Dr. I. Fischer read a paper on the Society's activity during fifty years and Dr. O. Frankl a paper on Semmelweis.

Dr. Edith Summerskill has been adopted by the Labour Party as its candidate for Parliament in the by-election at West Fulham, caused by the death of Sir Cyril Cobb.

On Wednesday, March 30, Lord Horder will take the chair at an unusual luncheon, which is being given by the Children's Minimum Council. The menu will be based on the diet recommended by the B.M.A. Nutrition Committee in 1933 as the minimum necessary for health and suitable for unemployed families. The Children's Minimum Council was founded soon after the report of the Nutrition Committee was published, and much of its propaganda has been centred upon it. It urges that the allowances for the unemployed should be at least sufficient to cover the food requirements of the B.M.A. scale, and has worked, with some success, for a more generous provision of free meals and milk for children and nursing and expectant mothers in all families where the expenditure available for food is below this scale. The luncheon, which is taking place at the London School of Economics, is intended to give medical men, Members of Parliament, and leading sociologists an opportunity of sampling the "minimum diet" for themselves. A limited number of invitations is being issued. Any doctors who would care to attend the lunch should apply as soon as possible to the Children's Minimum Council, 72, Horseferry Road, S.W.1.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
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QUERIES AND ANSWERS

Urticaria

"C. DE G." writes: I would be thankful for advice as to the treatment of urticaria in a boy of 5. The usual causes have been inquired into and the usual remedies, dieting, drugs, change of clothing, etc., tried without avail. The condition has existed for about a year.

"Geographical Tongue"

"A. P." writes: Can any reader tell me the cause of geographical tongue and the most effective treatment? I have had several cases in the past two years, and found no lotion or mouth-wash of any avail. Apart from being somewhat alarming to the parents the disease seems to have no serious effect on the health of the child.

James Yearsley: An Inquiry

Mr. CECIL P. G. WAKELEY writes: I have read with interest the article in your issue of February 26 on "James Yearsley and the Metropolitan Ear, Nose and Throat Hospital," which I see is in its centenary year. The writer of this article refers to Yearsley as "the originator and proprietor (though not the editor) of the *Medical Circular*," which journal was amalgamated with the *Medical Press* in 1866 to form the present journal, the *Medical Press and Circular*, which will achieve its centenary in January, 1939. I should therefore be much interested to know on what the writer of the article bases the statement that Yearsley both owned and founded the *Medical Circular*. The first editor was George Ross, M.D., but no evidence has so far been discovered, I believe, as to the exact relationship, financial and otherwise, between Yearsley and Ross; in fact but little is known of the history of the *Medical Circular* in its early years and indeed throughout its existence. I would therefore be glad if you could publish this letter in case it may catch the eye of someone who could, for instance, put either me as editor or the present proprietors of the *Medical Press and Circular* in touch with the descendants of George Ross or James Yearsley. George Ross, by the way, was born at Stonehouse, in Devon, in 1815 and died as medical officer of health of St. Giles District, London, in 1875. The *Medical Circular and General Medical Advertiser* (to give it its full title), by the way, was not founded till January, 1852—that is, six years after the founding of the *Medical Directory*.

*** We have referred this inquiry to our contributor R. S. S., who writes:

The *Dictionary of National Biography* article on James Yearsley (1900, **63**, 311), which is signed by the familiar and usually accurate initials "D'A. P.," states that Yearsley "was the originator and proprietor of the 'Medical Circular' from 1852 until it was consolidated with the 'Dublin Medical Press' in January, 1866." J. F. Clarke (of the *Lancet*), who was a contemporary of Yearsley, says in his *Autobiographical Recollections of the Medical Profession* (London, 1874, 376): "Yearsley was part proprietor of a medical journal which at that time exerted some influence on the profession. In the conduct of this journal he was associated with a gentleman of great ability, and one of the most brilliant writers of the day. [This refers to Dr. George Ross.] . . . That the *Medical Circular* did not attain the high position to which it was entitled from the ability and energy with which it was conducted was mainly due, I believe, to the really Quixotic character—or perhaps, to speak more correctly, the obstinate conduct—of Yearsley." James Yearsley has a number of descendants living; the most accessible member of his family is Mr. Macleod Yearsley, the aural surgeon, of London.

The "Emergency Bag"

The bandage mentioned in Dr. C. C. H. Chavasse's note (February 26, p. 496), when describing the contents of his emergency bag, is a "cellona" plaster bandage, manufactured by T. J. Smith and Nephew, Ltd.

LETTERS, NOTES, ETC.

Disclaimers

Count CASTELLANI OF KISYMAIO, K.C.M.G., M.D., F.R.C.P., writes: My attention has been called to certain articles published in various lay daily papers, after my recent return from America, some paragraphs of which might be interpreted as praising my private professional work. I wish to state that I strongly object to these notices and that I have had nothing to do with them or, as a matter of fact, any other notices that have appeared previously. I have never granted any interviews and the articles have been published absolutely without my knowledge.

Miss CONSTANCE OTTLEY, F.R.C.S., of Hove, wishes to state that the publicity given in the lay press to her article in the *Journal* of March 5 was without her knowledge or consent.

Corrigendum

In a leading article on the function of vitamin C which appeared in the *Journal* of March 12 at page 571 reference was made to "redoxon" as "Merck's ascorbic acid." Redoxon is a trade name for ascorbic acid as supplied by Roche Products Ltd.